PRELIMINARY REPORT

TO THE ALASKA STATE LEGISLATURE

SUBMITTED JANUARY 30, 2014

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ALASKA ARCTIC POLICY COMMISSION MEMBERS

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Dr. Lawson Brigham– Distinguished Professor, University of Alaska Fairbanks – University representative
Peter Garay – American Pilots Association delegate – Marine pilots representative
Chris Hladick – Unalaska City Manager – Local government representative
Layla Hughes – Conservation group representative
Reggie Joule – Mayor, The Native Village of Kotzebue - Kotzebue IRA – Tribal entity representative
Stephanie Madsen– Executive Director, At-Sea Processors Association – Fisheries representative
Denise Michels – Nome Mayor – Coastal community representative
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Stefanie Moreland – Special Assistant to Governor Sean Parnell – Governor's appointee
Lisa Pekich – Director of Village Outreach, ConocoPhillips Alaska – Oil & gas industry representative
Pat Pourchot – Special Assistant to the Secretary of the Interior – Federal government representative
Steve Scalzo – COO Foss Marine Holdings – Marine transportation & logistics representative
Stephen Trimble – President, Trimble Strategies – Mining industry representative
Jake Adams – Board Member, Arctic Slope Regional Corporation
Kris Norosz – Government Affairs Director, Icicle Seafoods, Inc.

Table of Contents

1 Foreword

Alaska Arctic Policy Commission

CO-CHAIR: SENATOR LESIL MCGUIRE, ANCHORAGE, 907.465.2995
CO-CHAIR: REPRESENTATIVE BOB HERRON, BETHEL, 907.465.4942

January 30, 2014

Dear Alaskans,

Alaska is America's Arctic, and the Arctic is changing. All eyes are on this vast, bountiful, and sparsely populated region – this creates new opportunities, and new challenges for Alaska. Across the Arctic and around the world, we have articulated a vision of this region as a vibrant place of activity and possibility. To envision these emerging opportunities is a good start, now we must help bring them to life for the benefit of Alaska and America.

Alaskans must boldly lead the United States in forming a strategy for its Arctic that realizes the state's prominent role in Arctic decision making. Alaskans have a shared responsibility to understand the issues at stake, including the perspectives and priorities of Arctic residents, and to set a clear course for leadership now and into the future.

Planting a flag in the Arctic is like planting a flag on the moon. It is an important symbolic message telling us to push boundaries and move with purpose toward Arctic endeavors. If we can conceive of the Arctic in a new way, a way that mirrors the reality and the way it ought to be—a place of unsurpassed beauty, culture and opportunity—then that is what the Arctic shall be.

Our timely report is consistent with the interest and commitment that our neighbors in the circumpolar north have shown in developing Arctic policies for their homelands. In addition, it coincides with the warranted but past due attention that the United States has given the topic in the last twelve months.

It is our job as Alaskans to seize these new opportunities, while at the same time overcoming new challenges and obstacles. We have trekked far and wide to ensure we received input from Alaskans around our state including Juneau, Barrow, Unalaska, Fairbanks and Anchorage in 2013, with visits to other locations planned in 2014.

2014 is the Year of the Arctic for the Alaska Legislature. There is a need to make sure Alaska is in the captain's seat as arctic decisions are made that will affect all Alaskans today and for hundreds of years to come.

Alaska Arctic Policy Commission
Co-Chair: Senator Lesil McGuire, Anchorage, 907.465.2995
Co-Chair: Representative Bob Herron, Bethel, 907.465.4942

If we act now, we have an opportunity to set the heading. The United States will be Chair of the Arctic Council in two years and it is imperative for Alaskans to develop and pursue our own Arctic vision. We must strive to be the navigator of the Arctic policy vessel.

This monumental undertaking of shaping an Arctic policy cannot be understated. It is easy for vision and leadership to be lost in the complexity of the task. However, we are not lost if we know where we have been, where we are, and where we are headed. This Preliminary Report acknowledges the first, provides a brief overview of the second, and begins to lay out clear guidelines and direction for the third.

To the legislators reading this, we ask you to take the time during this busy legislative session to provide critical and constructive feedback. Your input will help ensure that the Commission has the information it needs to draft what will become a determining and significant policy and implementation plan that shapes Alaska's future and benefits Arctic residents, citizens of the United States, and visitors who share its waters and land.

As fellow Alaskans, we know you recognize that with increasing activity in the region comes both risk and opportunity. We cannot let the perceptions of others determine Alaska's future. The Alaska Arctic Policy Commission is proud to provide this Preliminary Report of the findings and recommendations we have reached over this past year. We hope that you will view this Preliminary Report as a guide for maximizing opportunities and overcoming challenges that come with accepting our role as America's Arctic state.

Our fellow Commissioners, and many other Alaskans who have provided input, deserve our gratitude for their hard work and patience as together we have crafted this document. We look forward to 2014 when we will be gathering more public input, finalizing this report, seeking your "Arctic" appreciation, and producing a strategy for the implementation of Alaska's Arctic policy.

Sincerely,

Representative Bob Herron

Sincerely,

Senator Lesil McGuire

3

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2 Introduction

In years to come, Alaskans may ask how citizens of the state - and their government - are working to deal with massive changes coming to the Arctic region. This report of the Alaska Arctic Policy Commission shows that Alaska's leaders are working to understand the local, national, and global impact of an actively changing Arctic. Alaskans are on the forefront of new exploration and use of Arctic resources, and of new circumpolar cooperation.

Alaskans continue to dream big about the possibilities that come with an accessible Arctic, building on the vision and hard work of peoples who have lived here for thousands of years and many more who have contributed to exploring and pioneering in the region. The cultural traditions, beliefs, and practices that have sustained us must themselves be sustained. Alaska's leaders are working to make sure that happens.

Leaders in Norway, Denmark, Sweden, Finland, Iceland, Russia and Canada - and even non-Arctic nations like Singapore and China - all see the value of the Arctic. Meanwhile, many Americans still do not realize that the United States is an Arctic nation. Providing relevant information about the reality of the emerging Arctic, understanding and communicating the critical issues that affect this frontier, and instilling confidence in the promise of safety and prosperity is essential as Alaska and America move forward to ensure both.

The Alaska Arctic Policy Commission is doing its part to lay out a vision for the Arctic that values sustainable communities and thriving cultures; advances economic development and a healthy environment; and ensures public safety and security. The Commission believes these goals can be achieved in a transparent, inclusive process of collaboration with other levels of government and stakeholders.

The Alaska Arctic Policy Commission

In April 2012, the Alaska State Legislature established the Alaska Arctic Policy Commission to "develop an Arctic policy for the state and produce a strategy for the implementation of an Arctic policy." To accomplish these objectives the Commission has conducted a baseline review of the Alaskan Arctic by evaluating strengths, gaps and opportunities, and produced this *Preliminary Report to the Legislature. The Preliminary Report* sets forth a proposed Arctic policy and recommendations, from which Alaska's perspectives and priorities can be better understood by the many decision makers playing active roles in a rapidly changing Arctic.

As highlighted in the Commission's Letter of Intent to Secretary Kerry and National Security Advisor Rice (June 28, 2013)[1], the Commission operated under the "conviction that the state is

[1] See Introduction Appendix A for a copy of the Letter of Intent

an active and willing leader and partner in Arctic decision making, bringing expertise and resources to the table." Furthermore, the Commission remains "committed to producing a vision for Alaska's Arctic that stands the test of time; delivering policy statements that capture not only the opportunity of the Arctic but also the need to mitigate the challenges; and completing a final product that elevates the priorities and perspectives of Alaskans to a national and international stage."

Alaska's Arctic policy will guide the state's initiatives and inform U.S. domestic and international Arctic policy in order to best serve the interests of Alaskans and the nation. The Commission has considered a broad diversity of perspectives, drawing from a wealth of expertise within Alaska, while considering the national and international context of ongoing Arctic initiatives. This *Preliminary Report* includes a "State of Alaska's Arctic" chapter that summarizes the Commission's findings and which serves as the basis for its recommendations.

The Alaskan Arctic

Alaska is the sole reason the U.S. is an Arctic nation. Alaska holds 56% of U.S. coastline, and is 1/5 the size of the entire U.S. with 61.8% of its lands under the control of the Federal Government. Approximately 53,000 people out of Alaska's total population of 740,000 live in the Arctic region, which has a diverse and fragile ecosystem with considerable natural resource potential. Indigenous peoples have occupied the Alaskan Arctic for thousands of years and today account for about 70% of the total population in mainland areas bordering the Bering, Chukchi, and Beaufort Seas. Local, state, federal and tribal governments; Alaska Native Corporations; and industry have been active in the region for decades.

Increased Global Attention

The U.S. government and policymakers around the world have recently shown increased interest in the Arctic. A record number of non-Arctic nations were granted observer status at the 2013 Arctic Council Ministerial meeting and many of these nations have developed Arctic Strategies in recent years. This interest is due in large part to significant changes experienced by the region in the last decade, particularly environmental changes such as rapid loss of summer sea ice and melting permafrost. With these developments come a series of new challenges and opportunities with respect to the health, economies, and cultures of Arctic inhabitants; environmental impacts; access to natural resources; commercial shipping and tourism; and security.

Seeking Cohesive Policy in the U.S.

Alaska and U.S. domestic Arctic policy must be coordinated and aligned to achieve key objectives for the benefit of Alaskans and the nation. U.S. international Arctic policy should be a direct extension of sound domestic policy that has meaningful input from, and is endorsed by, Alaskans.

The Alaska Arctic Policy Commission was formed partially in response to efforts by the U.S. government to refine its Arctic policy. It is imperative that U.S. policy for the Arctic reflects the values and interests of Alaskans. The need for Alaska to influence national Arctic policy is about more than informed decision making. A top-down approach to U.S. Arctic policy that fails to build on the substantial knowledge (both traditional and scientific) and expertise of Alaskans would be counterproductive, inefficient, and lack legitimacy in the eyes of Alaskans.

The establishment of the Commission has provided an opportunity for members of the Alaska State Legislature and Alaskan Arctic experts to speak with a united voice about shared values, interests, and priorities for the Arctic region. Commission work products are intended to guide U.S. and Alaska policymakers to achieve effective Arctic policy at all levels of government. The Alaska State Legislature must continue outreach and education on Arctic policy among its members, all Alaskans, and the broader national and international communities.

Scope of Issues Addressed by the Commission

For the purposes of its work, the Commission applied the geographic definition of the U.S. Arctic set out in the Arctic Research and Policy Act (ARPA), henceforth called the Alaskan Arctic – from the Aleutians to the Canadian border, west and north of the Porcupine, Yukon and Kuskokwim rivers[2]. The Commission acknowledges that there are other ways to define the Arctic. For example, some definitions focus on the physical properties of the area, specifically the Arctic cryosphere (i.e., permafrost, sea ice, etc.), and others focus on geopolitical boundaries.

The Commission realizes that many issues facing the ARPA geographic area are similar to, or intertwined with, developments in other regions of Alaska. In fact, much of the dialogue around Arctic issues has relevance to geographic areas of Alaska found outside the "Alaskan Arctic" area as defined by the ARPA.

Although the challenges and opportunities of the Alaskan Arctic region cannot truly be separated from those of the state as a whole, the Commission has focused on those issues specific or unique to the Arctic region. The Commission did not wholly avoid statewide issues, but when those issues were addressed, they were examined based on how they related to the Arctic region in particular. Using the ARPA-delineated Arctic region also ensured that the Commission's work product would be in a form that is helpful to U.S. federal agencies, which draw a distinction between federal policy for the Alaskan Arctic and the rest of Alaska. The Commission recognizes that, especially from a national and international perspective, it is often necessary and beneficial for Alaska as a whole to be included in Arctic discussions.

[2] See ARPA Map in Introduction Appendix B

Policy Teams and Topics

The Commission organized its 26 members into policy teams co-chaired by Legislative members tasked with evaluating the following subjects: Governance and Indigenous Perspectives; Science and Research; Planning and Infrastructure; Oil, Gas, and Mineral Resources; Security and Defense; Marine Transportation; Response Operations; Energy and Power; and Fisheries and Wildlife.

Preliminary Report

The Commission has worked toward two deadlines since its inception: submitting a *Preliminary Report* to the Alaska State Legislature by January 30, 2014; and submitting its *Final Report and Implementation Plan* to the Legislature by January 30, 2015. The *Preliminary Report* includes four components:

1. **Introduction: The Alaska Arctic Policy Commission:** What and who the Commission is and why it was formed.

2. **Alaska's Arctic Policy**: Distilled, values-based Vision Statement and Arctic Policy that form the lens through which the Commission evaluated challenges and opportunities in the Alaskan Arctic.

3. **Strategic Recommendations:** A prioritized list of recommendations – based on the background information and policy statements – that the Commission is presenting to the State Legislature for consideration.

4. **State of Alaska's Arctic:** Includes detailed background, discussion, considerations, and additional draft recommendations.

The first three components of the *Preliminary Report* communicate "Alaska's Arctic Policy" as well as the key recommendations to the Legislature and the broader Arctic community. The "State of Alaska's Arctic" is designed to be a stand-alone document that reviews and evaluates gaps in knowledge, potential opportunities, challenges facing the region, and strategic assets at the community, regional, and state level. The *Preliminary Report* should be considered a draft, with public comment and additional work to be completed throughout 2014 and incorporated into the Final Report.

3 Alaska's Arctic Policy

The Alaskan Arctic Vision Statement

The Alaska Arctic Policy Commission respectfully submits to the 28th Alaska State Legislature for careful consideration this draft policy statement to establish an Arctic Policy for the state of Alaska.

Alaskans recognize the need for a higher level of attention to and deeper understanding of the "emerging Arctic." Increasing activity, change and opportunity, globalization and resource development, a sensitive environment and rich and diverse cultures are now framing the Arctic.

Therefore, the state of Alaska envisions an Arctic that:

- ***Values Community Sustainability and Thriving Cultures***

  Alaska will continue to value and strengthen the sustainability of communities and respect and integrate Arctic peoples' cultures and knowledge.

- ***Advances Economic Development and a Healthy Environment***

  Alaska will continue its commitment to economically vibrant communities sustained by development activities that recognize the need and our responsibility for a healthy environment.

- ***Ensures Public Safety and Security***

  Alaska will provide a safe and secure Arctic for individuals and communities, and coordinate with federal agencies on national defense obligations to enhance Alaska security.

- ***Incorporates Transparency and Inclusion into Decision Making***

  Alaska will collaborate with other levels of government, industry, non-governmental organizations, and tribes to achieve transparent and inclusive Arctic decision making that results in more informed, sustainable and beneficial outcomes.

The Alaskan Arctic Policy Statements

Therefore, it is the policy of the state of Alaska, as it relates to the Arctic, to:

- Recognize and respect the values and perspectives of the region's indigenous peoples, their cultures, and traditional ways of living.

- Sustain current and develop new approaches for responding to a changing climate that increase community resilience, adaptability and sustainability, as well as promote health and social well-being.

- Manage Arctic fisheries and wildlife for abundance and sustained yield using a science-based, ecosystem approach that integrates local and traditional knowledge.

- Build capacity to conduct science and research and advance innovation and technology, consistent with emerging risk and opportunity in the Arctic, as part of a state-led collaborative effort.

- Ensure that impacted communities receive direct and indirect benefits from economic development activities, including employment and training opportunities that might come with new and different careers.

- Strengthen disaster prevention and emergency response capability by coordinating the necessary levels of public and private investment for infrastructure and equipment.

- Collaborate with industry, local government, and federal agencies, and consult with Arctic residents, to improve the efficiency of permitting and regulatory processes, as well as to foster a positive investment climate.

- Strengthen cross-border relationships with Canada and Russia and support international Arctic cooperation.

- Pursue opportunities to meaningfully participate as a partner in development of federal and international Arctic policies and incorporate state and local government knowledge and expertise.

- Employ integrated, strategic planning and consult with Arctic residents for scientific, local and traditional knowledge to meaningfully enhance Arctic decision making.

- Attract Arctic investment with a competitive business environment supported by strategic investment in Arctic communications, energy, maritime, and aviation infrastructure.

- Establish, support and maintain national, state, community and personal security and safety.

4 Strategic Recommendations

Commissioners have identified the following "strategic recommendations" as important for priority consideration given their potential scale of impact – responding to significant gaps and/or opportunities – and the degree to which their implementation is complex or difficult.

These have been selected as recommendations that would benefit from the attention of the 28th Alaska State Legislature with the hope that action might come sooner than later. *Note: The recommendations are grouped by section and are in the order that they appear in this report. Strategies for implementation of recommendations will be further developed in 2014, prior to the final report's delivery in 2015.*

Governance and Indigenous Perspectives

- Continue to pursue, and actively expand, all avenues of participation in the Arctic Council, including involvement in Working Groups and by building partnerships with Permanent Participants.

- Develop, where lacking, and build upon existing programs to improve transparency and community/local inclusion in decision making through state coordination of multi-agency permits, state and federal coordination of permits and plans, and meaningful involvement of regional stakeholders in development activities or plans that affect them.

Science and Research

- Increase state funding to, and partnership with, the University of Alaska for Arctic research that aligns with state priorities and leverages the University's exceptional facilities and academic capacity.

- State agencies should consider adapting successful models – such as the Alaska Department of Environmental Conservation and Yukon-Koyukuk Tribal Communications Protocol – to development agreements with local governments and tribes regarding the use of traditional knowledge and culturally sensitive practices in research and permitting programs.

Planning and Infrastructure

- Conduct a comprehensive Arctic region economic and infrastructure assessment and planning process that integrates local, regional, state and federal planning efforts.

- Encourage the development of an inter-agency and inter-governmental working group tasked with working with multiple levels of stakeholders to develop and implement a

prioritization, funding and implementation mechanism for constructing and maintaining infrastructure and economic development.

Oil, Gas, and Mineral Resources

- Implement regional planning efforts that allow local stakeholders to identify and communicate priorities such as education, infrastructure, and development, to state and federal agencies.

- Develop a mechanism for revenue sharing from resource extraction for impacted communities, developing perpetual trust funds (where lacking) to finance community needs beyond the life of non-renewable resources.

Security and Defense

Due to the complexity and importance of National Arctic security issues the Commission decided that this area warrants more attention than they were able to give it. National Arctic security issues will be reviewed for the DOD agencies and the Coast Guard during 2014.

Marine Transportation

- Encourage development of appropriately integrated systems to monitor and communicate Arctic marine information, and continue state and federal support for programs such as the Alaska Marine Exchange.

Response Operations: Search and Rescue/Oil Pollution

- Facilitate and secure public and private investment in support of critical aviation and maritime response infrastructure and economic development, to include consideration of direct state funding and/or public-private partnerships that address development of communications, a deep draft port(s), icebreaker(s), logistics hubs, and a WX C-130 size aircraft hangar(s).

- Encourage and advocate for more adequate funding so that the U.S. Coast Guard can carry out its assigned and emerging duties in the U.S. maritime Arctic without compromising its capacity to conduct all missions throughout Alaska.

- Expand and support the Department of Environmental Conservation's effort to involve communities through Sub-area Planning and provide local training to maintain limited supplies of oil spill response equipment and to ensure timely, effective and safe response and spill containment.

- Support the Department of Environmental Conservation's ongoing communication with the U.S. Coast Guard in reviewing alternative compliance program development and applications.

Energy and Power

- Develop stable long-term funding mechanisms for state weatherization and energy efficiency programs while continuing robust efforts to find long-term energy solutions.

Fisheries and Wildlife

- Develop an assessment and monitoring program in support of strategies for fish and wildlife management that enhances food security for Arctic residents.

- Develop new and improve existing public education and awareness programs that result in a more informed public who understand the multi-faceted programs and policies that regulate the conservation of Arctic biodiversity and sustainable use of biological resources.

5 State of Alaska's Arctic

The "State of Alaska's Arctic" chapter is designed to be a stand-alone document that reviews and evaluates gaps in knowledge, potential opportunities, challenges facing the region, and strategic assets at the community, regional and state level. The Commission's Policy Teams were co-chaired by Legislators, who guided the work of their teams to investigate the topic areas addressed in the remainder of the document. *Note: these areas will be further developed in 2014 with significant additions and revisions based on subject matter expertise, agency input and public comment anticipated and planned for.*

5.1 Governance and Indigenous Perspectives

Introduction

Good governance is the foundation and fundamental goal of an Alaskan Arctic Policy. Well-established principles highlight some of the most important aspects of good governance in the Arctic[3], including a commitment to: economically and environmentally vibrant communities through balanced resource development and respect for the environment in which Alaskans live; sustainable communities that respect Alaskans' cultures, practices and traditional values; and leadership, collaboration, and transparent and inclusive decision making that achieves outcomes that benefit Arctic peoples and all Alaskans.

These principles are reflected in Alaska's Constitution, specifically Section 1.2 that states, "All political power is inherent in the people. All government originates with the people, is founded upon their will only, and is instituted solely for the good of the people as a whole." In addition, Section 8.1 lays out the policy of the state of Alaska to "encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest," and Section 8.2 vests the Legislature with the authority to "provide for the utilization, development, and conservation of all natural resources belonging to the state, including land and waters, for the maximum benefit of its people," subject to the sustained yield requirements of Section 8.4. The Constitution also provides for varying levels of government and jurisdiction, and provides for maximum local self-government in Section 10.1.

Background

Governance in the Arctic spans international, national, state and local levels, but it is important to understand and recognize the degree to which tribal governance and indigenous peoples exert influence on decision making in the Alaskan Arctic. The U.S. is one of many countries with indigenous populations that have inhabited the Arctic for thousands of years and includes the

[3] Arctic Research and Policy Act of 1984, Section 112

traditional cultural boundaries of the Iñupiat, Yupik, Siberian Yupik, Cup'ik, Aleut, Athabascan and Gwich'in peoples. Nearly 53,000 people live in the Alaskan Arctic, with more than 37,000 people (70%) identifying as Alaska Native or 'Alaska Native and another race.'[4] Alaska Native cultures have distinct language, familial, historical, cultural and traditional ties to the lands and resources in the Alaskan Arctic and across international borders.

Alaska Natives are engaged in multiple arenas of governance that touch every aspect of the lives of Arctic peoples, including the Arctic Council, the International Whaling Commission, state and federal co-management of subsistence resources, borough and city governments, and tribal governments.[5]

In addition, the federal government has a unique relationship with Alaska Native tribes. Federal executive departments and agencies are required to engage in meaningful consultation and collaboration with tribal officials in development of federal policies that have tribal implications, and are charged with strengthening the government-to-government relationship between the United States and federally recognized tribes. Alaska Native Corporations[6] are also consulted, in part due to their role in land management, and this provides an avenue for Alaska Natives to be directly involved in responsible development of natural resources and to develop businesses that support these activities, on behalf of their people. This is accomplished in a similar way to other state and federal public outreach during review and adjudications of planning or development processes.

In addition to tribal governance, Alaska has unique local or regional government, all of which have important roles in governance. Unlike most other states that typically have local government structures consisting of many overlapping local government service providers, Alaska's system of local government is simple, efficient and effective. A city government is a municipal corporation and political subdivision of the state of Alaska. It generally encompasses a single community. Presently, there are 145 city governments in Alaska. Like a city, an organized borough in Alaska is a municipal corporation and political subdivision of the state of Alaska. However, organized boroughs are intermediate-sized governments – much larger than cities. Presently, there are 16 organized boroughs in Alaska. All local governments in Alaska – general law cities, home rule cities, general law boroughs, and home rule boroughs – enjoy broad powers. All local governments have certain fundamental duties such as conducting elections and holding regular meetings of the governing bodies. Beyond this, the duties of municipalities in Alaska vary considerably.[7]

The role of local government needs to be included in any discussion of governance because it will be Alaska's communities – particularly coastal communities – that will bear the most risk

[4] 2010 Census
[5] See appendix – Tribal Governance
[6] See appendix – Alaska Native Claims Settlement Act
[7] http://commerce.alaska.gov/dnn/Portals/4/pub/Local_Gov_AK.pdf

and potential opportunity, depending on geography and distance from economic activity. Specifically, local government will be faced with many questions related to increased activity and potential development in the Arctic:

- Does the local government have or want a specific tax code to address the activity such as policies for taxing oil field or mining equipment?
- Is increased activity going to adversely impact current infrastructure or utilities, including docks, electric, water and sewer and solid waste? Who pays for necessary improvements?
- Does the local government have codes to deal with the activity? Are there zoning issues?
- Does the community realize the impacts to social services that might come with increased activity?
- What are the environmental impacts of the activity?
- How will communities balance the positive benefits of economic development?
- How will increased revenues maintain community infrastructure and support schools and other educational resources?

Clearly, local government has a distinct and important role to play in the Arctic because potential and real activity will impact communities in ways that haven't been fully realized.

Governance at the state level is defined by the Alaska Statehood Act of 1958, which granted the state approximately 105 million acres of land intended to help Alaska develop an economic base. Alaska was also granted ownership of state submerged lands beneath navigable waterways and submerged lands up to three miles offshore, and was given the primary authority to manage fish and wildlife on all lands and waters. The state of Alaska is the largest landholder after the federal government and has responsibilities as such.

The state of Alaska has a constitutional duty to responsibly develop and utilize Alaska's abundant natural resources for the benefit of its citizens, and to safeguard world-class fish, wildlife and the natural environment. These mandates are primarily achieved through state agencies entrusted with natural resource management responsibilities. The state of Alaska also has responsibilities to provide for the health, safety and education of its people.

The state of Alaska provides input to federal decision making and activities through state-federal agency coordination efforts, data and information sharing, submission of formal comments, and litigation. The state has a formal role in several coordinating entities active in the Arctic region, including:

- North Pacific Fishery Management Council
- Alaska Ocean Observing System
- North Slope Science Initiative
- Arctic Landscape Conservation Cooperative and Western Alaska Landscape Conservation Cooperative

- Alaska Climate Change Executive Roundtable
- North Pacific Research Board
- Arctic Policy Group

In part to keep interested Alaskans informed about the Arctic Council, the Office of the Governor hosts a bi-monthly Alaska Ad Hoc Arctic Council Working Group meeting and conference call. The call brings a diverse group of Alaskans together with the U.S. Department of State Arctic Affairs Officer, federal agency heads of delegation to Arctic Council working groups, and the Alaska Congressional delegation staff.

In addition to the activities of the executive branch and state agencies, the Alaska State Legislature acts in many ways to support the residents of the Alaskan Arctic region, perhaps most notably through funding infrastructure projects but also through public bodies that focus on the region. The Alaska State Legislature created the Alaska Northern Waters Task Force in 2010 and their final report has been available since January 2012. One of the report's recommendations was the creation of an Alaska Arctic Policy Commission (AAPC), subsequently formed by HCR 23 during the 2012 legislative session. In addition, the Legislature has passed several Arctic-relevant resolutions in recent years, including: HJR 15 "Supporting the Arctic Caucus" and HJR 19 "Urging U.S. Senate to ratify the Law of the Sea Treaty" in 2011; and SJR 17 "Supporting the Arctic Council Task Force" and HJR 34 "Asking Congress to fund icebreakers and a Coast Guard Arctic base" in 2012.

The next level of governance to consider is the role of the national government. U.S. Arctic Policy is codified in NSPD-66, which includes the following goals:

- Meet national security and homeland security needs in the Arctic
- Protect the Arctic environment and its biological resources
- Ensure natural resource management and economic development are environmentally sustainable
- Strengthen institutions for cooperation among the eight Arctic nations
- Engage the Arctic's indigenous communities in decisions that affect them
- Enhance scientific monitoring and research into local, regional and global environmental issues

On May 10, 2013, the White House released the National Strategy for the Arctic Region (NSAR), emphasizing three lines of effort: Advancing U.S. Security Interests, Pursuing Responsible Arctic Region Stewardship, and Strengthening International Cooperation. The NSAR is intended to position the United States to respond effectively to challenges and emerging opportunities arising from significant increases in Arctic activity due to the diminishment of sea ice and the emergence of a new Arctic environment. It defines U.S. national security interests in the Arctic region and identifies prioritized lines of effort, building upon existing initiatives by federal, state, local and tribal authorities, the private sector, and

international partners, and aims to focus efforts where opportunities exist and action is needed. It is designed to meet the reality of a changing Arctic environment, while simultaneously pursuing the global objective of combating the climatic changes that are driving these environmental conditions. The strategy directs the U.S. to consult and coordinate with the state of Alaska and Alaska Natives (recognizing tribal governments' unique legal relationship with the United States).

The NSAR will be implemented by more than 20 federal agencies that have responsibilities including resource management; scientific research; homeland security; emergency preparedness and response; maritime and aeronautical safety; and supporting communities. Many stakeholders in the Alaskan Arctic work closely with these agencies to achieve a wide range of management goals; these partners include state agencies, tribal governments and Alaska Native organizations, municipal governments, industrial and commercial interests, and conservation organizations. It is worth highlighting that the NSAR recognizes the state of Alaska as a key partner in its implementation.

Given the extent of federal agency involvement in the Arctic, coordination occurs through a number of inter-agency working groups – the Arctic Policy Group, National Ocean Council, Interagency Arctic Research Policy Committee, Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska, and the Committee on Marine Transportation – that meet periodically to review, develop and implement U.S. programs and policies in the Arctic.

Coordination between tribal, local/regional, state and national levels of governance is important in the face of increasing international attention paid to the Arctic. A critical starting point from which to consider international governance is the Arctic Council. The Arctic Council is the premier intergovernmental forum for Arctic issues and is made up of eight member nations, six Permanent Participants and observers. The state of Alaska supported the Arctic Council as it formed international agreements for search and rescue and marine oil pollution preparedness and response. The state has urged the U.S. Department of State to look to the Arctic Council to coordinate science and to inform best practices, yet asked that federal agencies look to Alaska when developing new standards and requirements for domestic land and waters.

Alaska is represented by the U.S. Secretary of State, the Senior Arctic Official, and federal Heads of Delegation. Four of the Permanent Participants represent Alaska Natives and send delegations from Alaska to engage in all levels of Arctic Council activities, with non-voting seats at the same table as Arctic nations. Canada assumed the Chairmanship of the Arctic Council in May 2013, and the United States is slated to Chair starting in 2015. The theme of Canada's Chairmanship is "development for the people of the North," with a focus on responsible Arctic resource development, safe Arctic shipping and sustainable circumpolar communities. In 2011, the Arctic Search and Rescue Agreement was negotiated and signed under the auspices of the

Arctic Council and in 2013 the Council negotiated the signing of an Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic.

Secretary Hillary Clinton, U.S. Department of State, and Secretary Ken Salazar, U.S. Department of Interior, attended the Nuuk ministerial meeting in 2011, becoming the first secretarial level officials to attend an Arctic Council (AC) meeting. Secretary John Kerry, U.S. Department of State, attended the 2013 ministerial meeting in Kiruna, Sweden. Increased interest in the AC has been driven both by changes in the region and by the international acceptance of the Council's role as the lead forum for international discussion of Arctic issues. Starting at the Nuuk meeting, by addressing Arctic search and rescue as well as initiating an oil spill response instrument, the ministers made a number of decisions that reflect and advance the growth of the Arctic Council as an institution.

By taking on increasingly important topics and negotiating binding commitments, the Arctic Council is evolving from a forum for discussion and technical assessment into an agenda-setting and policy-shaping organization. However, it should be noted that the majority of Arctic Council work does not result in binding agreements and that the Council is limited in the nature of binding agreements it can produce, as agreements must be approved through the domestic process of each member nation. For example, the U.S. cannot commit to major new requirements without Senate treaty approval (a process it has avoided for Arctic Council agreements). Of concern are any new restrictions imposed on Alaskans through an international body, especially when those restrictions may not have been supported by an open and transparent domestic process involving Alaskan stakeholders and domestic authorities.

In addition to the Arctic Council, the Arctic Parliamentarians of the Arctic Region serve as a forum for international Arctic cooperation. The Arctic Parliamentarians is a body whose delegates are appointed by the national parliaments of the Arctic nations. Every two years the Conference of Parliamentarians is held in an Arctic location. Senator Lisa Murkowski is the U.S. representative to the Standing Committee of Parliamentarians of the Arctic Region, which is responsible for the work between conferences. In addition to supporting the establishment of the Arctic Council and promoting Arctic Council work, the Standing Committee has Arctic Council observer status.

There are many other forums for international engagement in governance, including the International Maritime Organization and the International Whaling Commission. Each deserves Alaska's participation and full attention as the Arctic receives increased levels of attention and activity; especially important for Alaskans to fully understand are the ramifications of ratification of the United Nations Convention on the Law of the Sea (UNCLOS)[8].

[8] The Alaska State Legislature is on record as supporting ratification and the Commission will consider more fully in 2014 the issues surrounding the Law of the Sea Treaty such as paying taxes without representation and potential limitations to scientific research.

164 countries have joined the UNCLOS, an international agreement establishing the rights and responsibilities of nations in their use of the oceans, and defining guidelines for businesses, environmental protection, and the management of natural resources within and beneath the oceans. The United States remains the only large, maritime non-signatory and the only Arctic nation yet to ratify. The U.S. Senate is responsible for approving international treaties and has yet to vote on UNCLOS.

The other four Arctic Ocean coastal nations (Canada, Norway, Russia, and Denmark/Greenland) have signed the treaty and are thereby eligible to submit their extended continental shelf claims to the United Nations. The state of Alaska has a long history of support for ratification, and recently the Alaska Northern Waters Task Force's (ANWTF) priority governance recommendation was that the United States Senate ratify UNCLOS. The ANWTF report included this salient quote from President George W. Bush: "[Ratification] will secure U.S. sovereign rights over extensive marine areas, including the valuable natural resources they contain. Accession will promote U.S. interests in the environmental health of the oceans. And it will give the United States a seat at the table when the rights that are vital to our interests are debated and interpreted."

Discussion and Considerations

As the Arctic Council develops as an institution addressing significant policy concerns, it provides an increasingly useful forum through which the state of Alaska can influence Arctic policy. There are a number of ways to do this. Delegates from the state of Alaska can be invited to participate in U.S. delegations at all levels of meetings, task forces and working groups. For example, the state of Alaska provided a delegate to the U.S. team that negotiated the Oil Pollution Preparedness and Response Agreement. The state does not have the authority to direct PP activity but, some of the State's constituents directly influence Arctic Council policy through the four Permanent Participants representing Alaska Natives. The state of Alaska can also continue to provide expert advice to and review of the range of technical and policy documents created by various Arctic Council working groups.

Participation in the Arctic Council derives benefits to the state. The Arctic Council remains an important forum for exchanging technical information, and the state of Alaska can also benefit from the Arctic Council by continuing to contribute to and learn from this information exchange. For example, the Sustaining Arctic Observing Networks (SAON) is a project that integrates data from each nation into an Arctic-wide network. Alaska can also benefit from practical agreements that will help to protect the people of the state - the Search and Rescue agreement commits nations to minimum levels of response infrastructure to help save lives.

The state clearly benefits from the heightened visibility of the Arctic through the work of the Arctic Council. People across the world have become more aware of issues such as economic challenges, food security, health and social welfare, and infrastructure needs in the region, and

this awareness can help the state of Alaska educate others, including the federal government, about our needs and goals.

Finally, the Arctic Council can serve as a forum for creating new requirements and rules that can help to protect the state. For example, the Arctic Council can suggest rules (or recommend that another institution address them, such as the International Maritime Organization) that address the safety of activities that take place beyond state or federal jurisdiction (e.g., shipping). Because there are a number of ways in which the state of Alaska can benefit from the Arctic Council and pursue its Arctic Policy, the state should continue tracking projects of particular importance to the state and contributing as a member of the U.S. delegations to the Arctic Council via Senior Arctic Officials meetings, Task Forces and working groups. The state and its agencies have been active in the region since statehood, accumulating a wealth of experience and expertise. Every state agency is engaged in work related to the Arctic. Some noteworthy activities with particular relevance to the Arctic region, and which might impact Arctic decision making, include:

- Conducting exercises and maintaining equipment specifically designed for Arctic search and rescue (DMVA)
- Engaging in oil spill prevention, preparedness and response (DEC)
- Monitoring of trans-boundary contaminants (DEC)
- Addressing rural water and sanitation needs (DEC)
- Monitoring, conducting research, and managing fish and wildlife populations across the Arctic region (DF&G)
- Documenting subsistence needs and providing subsistence opportunity (DF&G)
- Working with proposed development projects to mitigate impacts to fish and wildlife resources and their habitats (DF&G)
- Leading efforts to improve statewide digital mapping (DNR)
- Developing expertise in permitting and regulation of resource development activities in Arctic environments (DNR)
- Contributing to deep draft Arctic port and improved airport infrastructure planning throughout the region (DOT&PF)
- Coordinating and conducting project permitting (DOT&PF)
- Building capacity and expertise to conduct comprehensive health impact assessments to inform resource development activities (DHSS)
- Collaborating with the University of Alaska Fairbanks to study shipping and related considerations for commerce and international trade (DCCED)

Consistent with the core state government functions mentioned above, current statewide priorities that are as essential to the future of Alaska's Arctic as to any other region of the state include: resources and energy; education; public safety; transportation and infrastructure; and military support.

Indigenous perspectives are extremely relevant and important to consider when evaluating future decision making. Given tribal governance capacity and sovereignty as well as the economic capability brought to bear by Alaska Native Corporations, it is important to recognize the interest and concerns of Arctic indigenous peoples in Alaska. The cultures of Arctic Alaska Natives are diverse, however there are common interests and concerns about a developing Arctic. The Arctic's Alaska Native communities have been developing solutions to tackle challenges affecting the residents of the Arctic that include lack of infrastructure (e.g., transportation, communications), high energy costs, public safety, high cost of living, and issues affecting social well-being. The following areas[9] express a good representation of priorities for consideration, though are by no means comprehensive or final:

- Food security – access to and utilizations of subsistence resources for customary and traditional use – is paramount to the health and well-being and survival of Alaska Native peoples and cultures
- Meaningful and direct inclusion in decision making
- Responsible development of natural resources and infrastructure that benefit the U.S. as a whole and benefits the peoples of the Arctic
- Use of local and traditional knowledge in research as well as identification of research priorities of Alaska Native communities
- Incorporating traditional knowledge when assembling information upon which to base decision making and to encourage the use of traditional knowledge at all levels of decision making
- Development of a ready workforce to participate in economic activities in the Arctic.
- Increased opportunities to develop local economies
- Ratifying the Law of the Sea Treaty[10]
- Continuation of traditional and cultural practices including subsistence hunting, fishing, gathering and practice of language and culture
- Reducing bureaucratic processes that require engagement at many levels and which can burden stakeholders and communities

In an increasingly busy Arctic, it is critical that Alaska strengthen and improve the structures, processes, and practices that determine how relations among people are regulated, how decisions are made, and the role that citizens have in this process. This includes utilizing transparent public processes that engage stakeholders, lead to informed decision making, and hold decision makers accountable. It must include coordination among jurisdictions, cooperation at all levels of government – including international, national, state, local and tribal – with clearly defined functions and roles, and balancing multiple values to protect, promote, and enhance the well-being of the Alaskan Arctic including the people, flora, fauna, land, water and other resources.

[9] These touch on all facets of Arctic policy and development, as reflected in the Department of Interior report "Managing for the Future in a Rapidly Changing Arctic," the Inuit Circumpolar Council "Inuit Arctic Policy," and other documents prepared by local entities.
[10] Inuit Arctic Policy

Conclusion: Policy Recommendations

Strategic Recommendations

- Continue to pursue, and actively expand, all avenues of participation in the Arctic Council, including involvement in Working Groups and by building partnerships with Permanent Participants.
- Develop, where lacking, and build upon existing programs to improve transparency and community/local inclusion in decision making through state coordination of multi-agency permits, state and federal coordination of permits and plans, and meaningful involvement of regional stakeholders in development activities or plans that affect them.

Other Recommendations

1. The state of Alaska has had limited participation in Arctic Council activities as part of U.S. delegations.
    A. The state of Alaska should continue to pursue, and actively expand, all avenues of participation in the Arctic Council, including involvement in Working Groups and by building partnerships with Permanent Participants.
2. There is a gap in effective communication and formal consultation between Arctic communities and other stakeholders and state and federal agencies.
    A. The state of Alaska should develop a program that achieves transparency and community/local inclusion in decision making through state coordination of multi-agency permits, state and federal coordination of permits and plans, and meaningful involvement of regional stakeholders in development activities or plans that affect them.
3. There is lack of information or centralized access to Arctic-specific information to guide governance decisions at all levels.
    A. The state of Alaska should facilitate the establishment of a clearinghouse of Arctic information that is useful for Alaska residents and communities.
4. Alaska's offshore and maritime interests are hampered by the U.S. inability to ratify the Law of the Sea Treaty.
    A. The state of Alaska urges the United States Senate to ratify the United Nations Convention on the Law of the Sea.
5. Alaska lacks clear and consistent cross-border information sharing and scenarios planning.

A. The state of Alaska should foster and strengthen international partnerships with other Arctic Nations, establishing bilateral partnerships with, in particular, Canada and Russia, to address emerging challenges in the Arctic. For example, forming a Beaufort Regional Business Council to work with Canada and/or a Chukchi Regional Business Council to work with Russia on shipping traffic and other issues.

5.2 Science and Research

Introduction

Climate change is causing profound transformations in the Arctic's complex ecosystems at the same time worldwide demand grows for the region's abundant natural resources. With the Arctic warming at twice the global rate, effects such as diminishing sea ice coupled with globalization are opening the way for more human activity in the region. Current or potential increases in shipping, mining, oil and gas development, fisheries and tourism demand that Alaska increase its knowledge of the Arctic's environment to inform the responsible development of these industries and protect human and ecosystem health. Alaska needs a solid research base to understand and mitigate the effects of climate change on residents of the Alaskan Arctic – effects that include coastal erosion, flooding, increasing storm activity and permafrost thawing. Ocean acidification and other changes in the ecosystem affecting flora and fauna may prove detrimental to subsistence users. All these factors are likely to have significant social, cultural, health and economic effects on Alaskan Arctic peoples.

Alaska's future prosperity depends in large part on the scientific, technological, cultural and socio-economic research it promotes in the Arctic in the coming years and its ability to integrate science into decision making. Ongoing and new research in the Arctic must be designed to help monitor, assess and improve the health and well-being of communities and ecosystems; anticipate impacts associated with a changing climate and potential development activities; identify appropriate mitigation measures as well as opportunities; and aid in planning successful adaptation to environmental, societal and economic changes in the region.

Background

There are many institutions, organizations and government agencies presently carrying out research in the Arctic.[11] State agencies regularly conduct research and several recent state-led initiatives have focused on the impacts of the changing climate in the Arctic. These include, for example, the work of the Alaska Climate Change Sub-Cabinet.[12] Local government and regional organizations conducting research in the Arctic include, but are not limited to: the Barrow Arctic Science Consortium, the North Slope Borough, Kawerak, the Aleut International Association, the Aleutian Pribilof Islands Association, and the Northwest Arctic Borough. Federal agencies active in the Alaskan Arctic conduct extensive mission-related research. They enhance their programs through several key inter-agency structures that promote coordinated efforts to address Arctic issues. These include the Interagency Working Group on Coordination of Domestic

[11] See Science and Research Appendix A

[12] The Alaska Climate Change Sub-cabinet issued its final report and recommendations in 2009. Several state departments have followed up on the recommendations, e.g., the ADGF&G Adaptation Advisory Group: see www.adfg.alaska.gov/index.cfm?adfg=ecosystems.climate and www.climatechange.alaska.gov

Energy Development and Permitting in Alaska; the National Ocean Council; and the Interagency Arctic Research Policy Committee. Also of note, and straddling governance levels, are the Alaska Ocean Observing System, the North Pacific Research Board, and the North Pacific Fishery Management Council.

It is worth highlighting the North Slope Science Initiative (NSSI) and the U.S. Arctic Research Commission (USARC) for their roles in setting science and research agendas for the Arctic.[13] The NSSI is among the most effective and inclusive research coordination and prioritization efforts operating in the Alaskan Arctic, as it actively involves regional stakeholders as well as state and federal agencies. While NSSI does not address the entire Alaskan Arctic, its mission closely parallels the priorities of the state in regards to science and research. As stated in the organization's 2009 *Emerging Issues Summaries,* "The vision of the NSSI is to identify those data and information needs management agencies will need in the future to develop management scenarios using the best information and mitigation to conserve the environments of the North Slope."

In addition to coordinating research activities, the NSSI also identifies and prioritizes information needs on an ongoing basis. Its mission states that it "also facilitates information sharing among agencies, non-governmental organizations, industry, academia, international programs and members of the public to increase communication and reduce redundancy among science programs." The wide scope of NSSI research coordination is evident in the diverse membership of its Science Technical Advisory Panel (STAP), which gives guidance to the NSSI on matters of science and research planning, the compatibility of methodologies and data compilation, quality assurance of NSSI-generated science, and many other matters.

One of the responsibilities of the USARC, which was created by the Arctic Research and Policy Act of 1984, is to recommend coordination improvements in federal research programs. Additionally, it is among the Commission's lawful duties to "cooperate with the Governor of the state of Alaska, and with agencies and organizations of that state which the Governor may designate" and to "facilitate cooperation between the Federal Government and state and local governments with respect to Arctic research." The USARC also helps develop national research goals and assists the Interagency Arctic Research Policy Committee in creating an Arctic research plan, including, notably, the *Arctic Research Plan: 2013-2017*, which has been incorporated into the federal government's *Draft Framework for the National Strategy for the Arctic Region Implementation Plan*.

Private sector interests – in particular the oil, gas and mining industries – have been active in Arctic research for decades conducting baseline assessments of environmental conditions, mapping, and identifying social risks and opportunities associated with on-going and potential industrial development in the region. That research informs permitting and license applications

[13] See Science and Research Appendix A for a full description of NSSI and USARC

as well as allows effective engagement by industry in the regulatory process. Engineering firms and the support industry assist in the data collection and analysis of private sector science and research.

Non-governmental organizations have long held interest in the Alaskan Arctic's research programs and many fund research in the region. These include the Pew Charitable Trusts; World Wildlife Fund; Oceana; International Union for Conservation of Nature; Gordon and Betty Moore Foundation; the Aspen Institute, Arctic Commission Roundtable; and the Oak Foundation.

Education and the broad impact of public outreach is conducted at multiple levels, including through the university system and such collaborative efforts as the University of the Arctic, which serves as a virtual institution supporting research and education across the Arctic Nations. In addition, the Arctic Portal, based in Iceland, serves as a data depository and information clearinghouse.

Many of the above entities regularly collaborate with one another and with international partners. The foremost international forum gathering knowledge of the Circumpolar North is the Arctic Council. The council's six Working Groups—comprised of experts from among the member nations and Permanent Participants—compile research and conduct analysis related to Arctic monitoring and assessment, Arctic contaminants, protection of the marine environment, emergency prevention and preparedness, conservation of flora and fauna, and sustainable development. Officials from Alaska state agencies and researchers from the University of Alaska as well as Alaskans who are members of Permanent Participant organizations have regularly taken part in Arctic Council working groups and task forces.

Amidst the multiple layers of research taking place, there are key research areas and methodologies that should be especially emphasized. Identified by authorities worldwide as a high priority, improved regionalized modeling was included in the recommendations of the Alaska Climate Change Sub-Cabinet in 2009 and in the findings of the ANWTF in 2012. Both entities also noted the relationship between improved modeling and effective scenarios planning, and they specifically recommended expanding the Scenarios Network for Alaska and Arctic Planning (SNAP) at the University of Alaska Fairbanks. Additionally, the USARC and the U.S. Interagency Arctic Research Policy Committee emphasize the importance of regional models and scenario planning in the *Arctic Research Plan: 2013—2017*. This is among the most important areas of inquiry for the state because of models' practical use in developing strategies for managing wildlife and for sustainable and adaptable communities, civil infrastructure, and economic development infrastructure.

With the support of the state, the NSSI is embarking on scenario planning in partnership with the University of Alaska Fairbanks. NSSI scenario planning will ensure that agencies have good resource information for their decision making on North Slope activities. Decisions about

research and monitoring programs are most effective when based on plausible future social-ecological system expectations. The NSSI will use scenario planning to systematically assess a range of energy and resource extraction development scenarios for the North Slope and adjacent seas through 2040 in a manner that will contribute to our mutual understanding of the potential future state of the social-ecological systems of the region. The specific objectives are to:

- Identify future development scenarios on Alaska's North Slope and adjacent seas
- Identify information needs for decision making relative to those scenarios and to prior NSSI emerging issue analyses
- Use project results to enable more effective coordination of the identified research and monitoring needs

Simultaneously, as the USARC has advised, policy makers should not unduly focus on distinctions between basic and applied research, especially in light of the complexity of climate change and the need for better understanding whole ecosystems. As the state fosters research that has real-world applications, it should not neglect projects that may take time to yield practical outcomes. To be able to better anticipate and adapt to changes across the Arctic region, Alaska needs to continue to advance basic research.

In summarizing its chief recommendations, the Alaska Climate Change Sub-Cabinet noted: "The success and accuracy of downscaled models is largely dependent upon the quantity and quality of data available." The compiling of comprehensive baseline knowledge of existing environmental conditions is also crucial to measure, in order to subsequently mitigate, the impacts of increased activity in Arctic ecosystems. Focuses should not only include marine and terrestrial physical, chemical, and biological variables but also the cultures, socioeconomics, and health of Arctic populations. Two areas are worth particular emphasis: data sharing and accessibility; and traditional knowledge and culturally-considerate practices.

Data Sharing and Accessibility

In 2012 the ANWTF recommended "improving the exchange of research information and integration of data management…Faster and more extensive integration of data collected by state and federal agencies, academics, and industry would yield enormous benefits for all stakeholders." Better data sharing and accessibility is needed between agencies, academic institutions, industry and other organizations. Benefits include increasing the knowledge available to decision makers in both the public and private sectors; strengthening and refining of findings through data synthesis; reducing duplicative research; and enhancing the effectiveness of interdisciplinary research efforts. The ANWTF noted that organizations already working toward these goals – such as the Alaska Ocean Observing System and the NSSI – should be encouraged and supported.

Traditional Knowledge and Culturally Considerate Research Practices

In 2012 the ANWTF noted that "the local and traditional knowledge gathered by Alaska's indigenous peoples over thousands of years is critically important to a fuller understanding of our northern ecosystems and the multitude of marine and land-based resources within them." The NWTF went on to recommend that "the local and traditional knowledge of the state's indigenous inhabitants be incorporated into all relevant areas of study" in the Arctic.

At the state level, there are few examples of required solicitation and use of local and traditional knowledge specifically related to agency research. Most significant among them is the work carried out by the Division of Subsistence within the Department of Fish and Game. State law requires the division to "compile existing data and conduct studies to gather existing information, including data from subsistence users, on all aspects of the role of subsistence hunting and fishing in the lives of the residents of the state." Direct uses of this information include the division's statutory duty to make recommendations to the Board of Fisheries and the Board of Game regarding regulations affecting subsistence fishing and hunting and to collaborate with other agencies on the formation of statewide and regional management plans. The division is also required to "make information gathered available to the public, appropriate agencies, and other organized bodies."

Discussion and Considerations

Clearly, there is a vast amount of science and research being done in the Alaskan Arctic by a broad spectrum of interests, from the public to the private sector and including non-governmental organizations, the University system and many others. It is critical that Alaska be involved in the various forums that build the information base available to policy-makers. Failure to fully engage will result in the state following the lead of others, which may give rise to policies that do not align with priorities and needs of Alaskans.

Traditional Knowledge

Local and traditional knowledge and subsistence activities inform many of the above entities' research priorities, activities and findings, but there is a need for more effective use of traditional knowledge. Inquiry into how researchers can better integrate local people and traditional knowledge into their projects is receiving increasing attention.

Alaska laws do require public notice and comment periods related to agency decisions on permits, authorizations and area management plans, but many representatives from local governments and Alaska Native organizations have voiced discontent with the lack of specific reference to traditional knowledge and tribal consultation in that body of law.

A primary example of meaningful cooperation between the state and local and Alaska Native entities on this issue lies in a tribal communications protocol produced by the Department of

Environmental Conservation in 2011. The *DEC and Yukon-Koyukuk Tribal Communications Protocol* was negotiated to enhance communications between the department and regional tribes during DEC Alaska Pollutant Discharge Elimination System (APDES) permitting. It is designed to:

- Facilitate early notification of permit applications received
- Facilitate effective coordination between DEC and the Tribes by communicating clear information about APDES permitting
- Provide DEC APDES permit staff with information for effective tribal communication and participation in permitting
- **Facilitate the incorporation of pertinent local and traditional knowledge into permits through early notification and engagement** (Emphasis added)

Although the protocol was negotiated specifically in the context of the APDES program, ADEC Commissioner Larry Hartig has described the document as "a potential model for other Tribes and communities." Likewise, the EPA, which funded development of the protocol, stated in its grant description "the best practices resulting from the project will be applied in other Alaska Department of Environmental Conservation programs and potentially to other state permitting programs."

While the goal of using traditional knowledge in conjunction with conventional research is of considerable importance, there also exists a pressing need for increased investigation into precisely how to effectively and meaningfully do so. In *Traditional Knowledge and the Arctic Environment*, published by the Pew Charitable Trusts U.S. Arctic Program in August 2013, the authors assert that it is time to assess the use of traditional knowledge to date and ask, "What can be done to make better use of what traditional knowledge has to offer while respecting the time, patience, and expertise of its holders?" The Social Science Working Group of the North Pacific Research Board is also concerned about these issues and is currently devoting significant attention to the question of how researchers can best integrate local people and their knowledge into research projects and decision making. The NSSI, too, is actively working on better ways to incorporate traditional knowledge into scientific research.

Additionally, the Division of Subsistence's practices, which adhere to the ethical principles of the social sciences, are useful. These standards include ensuring the anonymity of participants, informed consent, and following up with study communities to inform them of research findings. Similarly, research projects at the University of Alaska Fairbanks are rigorously scrutinized by its Institutional Research Board to ensure community sensitivity, data confidentiality and other ethical considerations.

Another resource is the "Policy Guidelines for Research" adopted by the board of the Alaska Federation of Natives in 1993, which urges the training and hiring of Alaska Natives to assist in

studies and requires that communities be advised of the positive and negative implications and impacts of the research.

State-Federal Collaboration

Of significant concern to Alaska is the extent and quality of Alaskan participation in existing federal decision-making bodies that drive scientific research priorities. As described in current federal law, the NSSI's STAP panel's 15 scientists and technical experts are drawn from "diverse professions and interests including the oil and gas industry, subsistence users, Alaska Native entities, conservation organizations, wildlife management organizations, and academia, as determined by the Secretary [of the Interior]." Since 2005, Alaskans have made up a substantial proportion of the STAP membership. However, beyond the general guidance that the STAP membership should include experts from among Alaska Native entities and subsistence users, there are no specific requirements regarding the appointment of Alaskan residents to the panel.

At the same time, the USARC consists of seven members, appointed by the President, as well as the director of the National Science Foundation, who serves *ex officio*. At present, the USARC includes four commissioners who are longtime Alaska residents. However, similar to the legislation enabling the NSSI, the Arctic Research and Policy Act of 1984 requires that only one appointee be a resident of Alaska.

Currently, nearly 90 percent of the research and development expenditures at the University of Alaska Fairbanks (UAF), which carries out the lion's share of UA research in the Alaskan Arctic, is derived from federal and institutional competitive grants. By contrast, in an average year only about seven percent of UAF's research expenditures budget is derived from state of Alaska funding.

UAF competes very successfully for federal grants, for example winning more than $115 million in research and development funding for the 2012 fiscal year. In almost all cases, federal agencies including the National Science Foundation, the Department of the Interior, NASA, and the Department of Defense proffer grants for projects focused on specific subject matter and in turn the university develops proposals to compete for the funding. Institutional funding, which often includes partnerships with other universities, private industry, and foundations, also normally requires UAF to design research projects according to the grantmakers' goals.

Under this rubric, the vast majority of the research conducted by the university is driven by federal agency and institutional priorities, rather than needs identified by the state. Thus, if Alaska seeks more influence over the direction of UAF's Arctic research, it must provide increased research funding to the university. University officials already meet on a regular basis with state agency personnel to strategically examine Alaska's needs and to determine if UAF research capacity makes it the best institution for a given project. There are also opportunities for state funding to leverage substantial federal matches for research on topics of equally high priority to both Alaska and the U.S. government.

An Alaska Arctic Research Agenda

It is worth considering the development of an Alaskan Arctic research agenda that better articulates the state of Alaska's priorities, which could include:

- Economic and socio-economic factors affecting Arctic communities' sustainability and adaptability
- Human physiological, behavioral, and mental health
- Civil and industrial infrastructure planning
- Ocean acidification and its possible impacts on subsistence and commercial fisheries;
- Tracking of trans-boundary contaminants and persistent pollutants and their cumulative impacts on Arctic inhabitants and ecosystems

As part of this research agenda, the state of Alaska should be able to make clear to federal entities providing financial support for modeling efforts that while due resources should be devoted to development of models designed to aid in the responsible management of wildlife, equal emphasis must be given to creating models useful for managing infrastructure and critical public services. There are also concerns that the limitations of models developed to aid in decision making be clearly identified. Even as baseline data and component parameterizations improve, decision makers must have a clear understanding of uncertainties present in model projections in order to evaluate contingencies and determine proper levels of precaution in management and strategic approaches.

Observational systems are among the most effective means for monitoring and documenting change, improving inputs to models and informing permitting decisions. They are also a valuable way to meaningfully involve Arctic communities in research activities. As Henry P. Huntington and George Noongwook write in their recently published brief *Traditional Knowledge and the Arctic Environment*, "Hunters spend a great deal of time on the land and sea and cover a great deal of territory. Making use of this widespread expertise would provide a broader, more up-to-date and different picture of the environment than is available from many other methods, complementing data from remote sensing and sparse monitoring stations. Incorporating local data would also increase confidence in the results of monitoring, building a better foundation for cooperative action to address impacts and changes that are detected."

As well as increasing the monitoring and documentation of change, there needs to be a greater understanding within the state of the mechanisms that influence ecosystem dynamics. Process studies can add to this knowledge and help to reveal the forces shaping ecosystem structure and function. In addition, the transfer of findings from process studies into models can reduce model uncertainties and improve the accuracy of model projections.

To ensure organized state input to federal, local and institutional decisions on Arctic research and monitoring needs, a process is needed to establish state government priorities guided by state objectives in the region. As the state's engagement with Arctic issues increases, the executive

branch will play an important role in improving coordination of state agencies' roles in matters related to Arctic research.

Coordination and prioritization of research activities must be improved. Federal interagency efforts in this sphere are already substantial and a number of them include state agency participation. The federal government has called for a review of interagency activities in the Arctic in order to identify and address overlapping missions and reduce duplication of effort. Such a review must include considerations of how each interagency group interacts with state policy makers to ensure their work addresses Alaska's needs. The state has an increasingly important role to play in the review and in the crafting of recommendations for how to more wisely use limited capacity to address Arctic science and research requirements. Alaska should pursue strategies to broaden and strengthen the influence of its agencies, its academic experts, and its local governments and associations.

Conclusion: Policy Recommendations

Strategic Recommendations

- Increase state funding to, and partnership with, the University of Alaska for Arctic research that aligns with state priorities and leverages the University's exceptional facilities and academic capacity.

- Consider adapting successful models – such as the Alaska Department of Environmental Conservation and Yukon-Koyukuk Tribal Communications Protocol – to development agreements with local governments and tribes regarding the use of traditional knowledge and culturally sensitive practices in research and permitting programs.

Other Recommendations

1. While there are mechanisms in place to include Alaskans in science and research prioritization and implementation, the extent to which state-federal interagency efforts yield outcomes that align with the state of Alaska's interests varies. The North Slope Science Initiative has been a model for generating borough, Alaska Native Corporation, federal, and state research priorities and strategies that correspond with the state of Alaska's interests.

    A. The state of Alaska should support discussions currently underway to add Northwest Arctic Borough participation with the NSSI, thereby extending the initiative's geographical scope without compromising its mission or effectiveness.
    B. The state of Alaska urges its congressional delegation and the U.S. Congress at large to amend Section 103 of the Arctic Research Policy Act of 1984 (Amended 1990) to provide that a minimum of four of the seven members of the U.S. Arctic Research Commission appointed by the President be Alaska residents.

2. The high proportion of federal funding for Arctic research at the university means that the majority of inquiry conducted there is guided by federal agency priorities. To enhance its influence over the direction of UAF's Arctic research, the state must provide increased research funding to the university.

    A. The state of Alaska should increase state funding to, and partnership with, the University of Alaska for Arctic research that aligns with state priorities and leverages the University's exceptional facilities and academic capacity.

3. Traditional knowledge remains underutilized as a resource in state-agency scientific research and corresponding decision making. Agencies also need to address the conduct of specific research projects to include practices that ensure research in and around rural communities is carried out in a manner considerate of local individuals and their culture.

    A. The state of Alaska should consider adapting successful models – such as the Alaska Department of Environmental Conservation and Yukon-Koyukuk Tribal Communications Protocol – to development agreements with local governments and tribes regarding the use of traditional knowledge and culturally sensitive practices in research and permitting programs.

    B. The state of Alaska should support and encourage the development of methods for more effectively integrating traditional knowledge into conventional research and natural resource management.

    C. In addition, the state of Alaska should participate in Arctic Council efforts to develop recommendations for incorporation of traditional and local knowledge into its work, currently undertaken by the Canadian Chairmanship.

5.3 Planning and Infrastructure

Introduction

A full analysis of Planning and Infrastructure requires a collection and review of cross-border, national, state, regional and community economic development plans, transportation plans, and strategic planning documents.[14] The goal should be to identify ways in which multiple levels of planning are integrated and coordinated to support economic and community development, and response operations, in the Alaskan Arctic. Planning and Infrastructure should accommodate:

- Ports, Harbors, Places of Refuge, and Anchorages
- Telecommunications, Aids to Navigation, and Data Acquisition and Sharing
- Emergency Management and Response
- Transportation and Access to Resources
- Energy Extraction, Production and Delivery
- Human Resources, Workforce Development, Research, Education and Training
- Sewer and Water

Critical to our understanding of these areas is the extent to which they are inter-linked as fundamental building blocks of sustainable development in the Alaskan Arctic. The vast majority of work to date in these areas has been intermittent (conducted on a project by project basis), uncoordinated (unresponsive to a direct point of contact or leadership team) and independent (unable to take into account inter-modal and cross-sector assets or processes). In order to ensure future prosperity in the Arctic, Alaska must implement strategic, integrated, and intentional planning that results in safe, secure, affordable, efficient, and reliable activities.

Background[15]

When considering planning and infrastructure in the Alaskan Arctic, it is important to understand the scope of the region, its resources and broader issues of concern. The coastline from Dutch Harbor in the Aleutians to Barrow on the North Slope is the same distance as the coastline from Maine to the southern tip of Florida. Within the Alaskan Arctic, there is a vast array of resources.

2012 saw the lowest level of summer sea ice, covering only 3.4 million square kilometers. Sea ice recovered somewhat in 2013, however the overall trend is decreasing sea ice at an aerial extent of 2.7% per decade and accelerating. Predictions are wide-ranging, but there could be a completely ice-free Arctic ocean (in summer months) as early as the 2030's. As ice melts, shipping though the Arctic will increase. Businesses can reduce shipping costs by as much as 40% using Arctic routes rather than the Suez Canal. While this is still not (and may not ever be) a major shipping route, there is increasing activity – mainly along the Northern Sea Route (along

[14] See PandI Appendix C Reference list
[15] Adapted from the Alaska Northern Waters Task Force final report, which continues to be relevant

Russia's northern coast) and through the Bering Strait. According to the U.S. Committee on the Marine Transportation System, a record 46 vessels transited the Northern Sea Route in 2012 compared to 36 in 2011 and 4 in 2010. According to Russian officials, 71 vessels transited the NSR in 2013.[16] In 2012, 1.2 million tons of cargo, up 50% from 2011, was shipped through the Northern Sea Route. In Alaska, and specifically the Bering Sea, vessel traffic is also increasing. Between 2008 and 2012, vessel transits in the Bering Sea rose from 220 to 480. On top of minimal communication equipment, poor weather forecasts, and poor sea ice predictions, the nearest emergency response facilities are located in Anchorage, Kodiak and Dutch Harbor, which are at least 635 miles away from the maritime Arctic Circle. There is a critical need to improve infrastructure along the coast to support search-and-rescue efforts and oil spill response to keep up with additional marine traffic and other human activity.

Clearly, the Arctic is experiencing profound change as it is confronted with the increasingly evident forces of globalization and climate change, as well as new economic challenges for its communities. But this area is not new to the world. Indigenous peoples have been living in the Arctic for thousands of years. It is home to many Alaska Native cultures that rely on subsistence hunting and fishing. It is also an area of heightened environmental importance. Even in a region that is characterized by harsh climates, extreme weather conditions, and times of constant light followed by constant darkness, there is an abundance of life.

Increasing changes and activity in the Alaskan Arctic are likely to hold enormous implications for both existing and future construction of infrastructure. The ability to better predict and understand the effects of phenomena such as widespread thawing of permafrost will help Alaska prepare for considerable maintenance issues on existing roads, airports, buildings, and pipelines. Just as importantly, it will aid engineers when it comes to properly siting, designing, and constructing new infrastructure capable of withstanding future changes in their specific environments. The Alaska Department of Transportation and Public Facilities (ADOTPF) have also examined these important concerns in their report on the "Impact of Climate Change on Alaska's Transportation Infrastructure."[17]

These changes pose significant challenges to some communities in Arctic coastal and riverine areas, most notably those located along the Bering and Chukchi Seas. A number of communities are threatened with increased rates of coastal erosion and flooding as a result of storm activity and battered shorelines once protected by shore-fast ice. These problems could become chronic as the climate warms, seasonal sea ice retreats, and destructive coastal storms become more frequent. These important concerns have been recognized in reports issued by the state of Alaska's Climate Change Subcabinet Immediate Action and Adaptation work groups.

[16] See reference, http://news.nationalgeographic.com/news/energy/2013/11/131129-arctic-shipping-soars-led-by-russia/
[17] See reference, http://climate.dot.gov/documents/workshop1002/smith.pdf

Immediate investment in Arctic infrastructure is a priority for Alaska and is relevant to the interests of the entire United States. Alaska will need to explore ways to attract substantial sources of capital investment in addition to state and federal funding. Action is needed to enable the responsible development of resources; facilitate, secure, and benefit from new global transportation routes; and safeguard Arctic residents and ecosystems. This investment will improve the safety, security, and reliability of transportation in the region—a goal established by the U.S. Arctic Policy signed by President Bush in 2009 and included in the 2013 U.S. National Strategy for the Arctic Region.

Over the last 50 years, the state (through the Village Safe Water program within the Alaska Department of Environmental Conservation) and its federal funding partners (EPA, USDA Rural Development and Indian Health Service) have supported community sanitation systems in rural Alaska. However, DEC reports that the cost of addressing rural sanitation needs has increased substantially in recent years while annual funding has decreased substantially. If this long-term trend continues, many rural Alaska homes will never receive adequate water and sewer service, and many others will lose service as resources will be insufficient to replace all aging infrastructure.

With transformation in the Arctic calling for a broad spectrum of new facilities on such a large scale, the state of Alaska must take an active role in regional planning efforts with communities and their stakeholders, while also keeping in mind the maintenance and upkeep of existing infrastructure. This will help communities develop local strategies and ensure that the state is getting the most return on investment for local projects. Some communities may not have the resources to adequately prepare for the future, and the state should take this opportunity to help increase local capacity for the benefit of all Alaskans.

Discussion and Considerations

Alaska is on a cusp; declining oil production and the reliance on that revenue stream have minimized the development of other resources and the infrastructure necessary for that development. Regardless of whether the development is of oil, gas, methane gas hydrates, minerals, geothermal, other renewable resources or the development of transportation capabilities, a new focus on the development of a statewide *infrastructure system* is necessary and timely. Regionalizing such a system – and beginning with emerging challenges and future scenarios in the Arctic – allows planning to take place that recognizes local and community concerns, prioritizes local resources differently, and provides the greatest leverage to address localized challenges and the greatest amount of opportunity. Infrastructure contributes to *economic growth* (acting through both supply and demand) as well as a peoples' quality of life.

The state of Alaska, then, should consider as a fundamental aspect of its Arctic policy the active development of Arctic infrastructure.[18] Indeed, a robust Arctic infrastructure system is the best answer to economic development planning. This will require the state to make public infrastructure investment decisions based on three components: good economic practices ensuring financial stability; minimizing the impact on the land ensuring environmental sustainability; and assuring the impact on the peoples of Alaska is always positive.

The primary concern should be the meaningful evaluation of – and investment in – response capacity. Alaska must take a leadership role in its emergency management systems in order to reduce uncertainty. A tiered approach whereby Alaska is able to identify primary, secondary and tertiary response assets is warranted. Included in the mix should be consideration of private and/or industry-owned assets, which may be closer to an impacted area than public resources.

Increasing attention should be paid to communications and navigational aids, as well as mapping, hydrography, and bathymetry. The state of Alaska can facilitate this to a large extent, working with federal partners and industry. The same is true for data sharing, increased research collaboration, and private-public partnerships in acquisition and value-added products.

It is worth recognizing that differences in proximity, risk, geography, and scale of challenge make evaluation of response capacity and the need for infrastructure difficult—there is not a one-size-fits-all approach to infrastructure development.

Infrastructure development must be responsive to social, environmental and cultural impacts as a core element of sustainable development. This is important not only for transportation infrastructure, but for energy development and transmission. Furthermore, accessibility of high speed internet in rural communities is still a major obstacle for participation in decision making and is needed to foster more innovation for sustainable businesses in rural villages, and to inspire the state's young people to return after college.

Creative funding strategies (i.e., public-private partnerships) for infrastructure cannot be ignored. Much of the critical infrastructure throughout the North is under the same influences of time, climate change and dwindling resources – planning should occur accordingly. At the same time, investments in infrastructure should be leveraged—an intermodal approach and layering of resources has a multiplier effect on infrastructure development and a direct impact on economic and community development. In addition, planning and infrastructure development needs to account for global supply chains and staging infrastructure outside Alaska.

Lack of adequate water and sewer service is posing a serious health risk in a number of communities in rural Alaska including in the Arctic. Residents without running water and flush toilets have a significantly higher incidence of serious infection than persons with sanitation

[18] See Appendix A "Alaska Northern Waters Task Force" - Findings and Recommendations Pg. 18

service. Approximately 4,500 households in rural Alaska lack running water and flush toilets and many of the 30,000 homes currently connected to systems are in jeopardy of losing service due to system age, deterioration, and harsh weather conditions.

Finally, Alaska's greatest resource is its people, who should be prepared to compete beyond the state for opportunities around the world. Only in this way can Alaska ensure its competitiveness. Adequate funding for education from pre-kindergarten through college will be necessary, as well as investment in technical trainings.

Conclusion: Policy Recommendations

Strategic Recommendations

- Conduct a comprehensive Arctic region economic and infrastructure assessment and planning process that integrates local, regional, state and federal planning efforts.
- Encourage the development of an inter-agency and inter-governmental working group tasked with working with multiple levels of stakeholders to develop and implement a prioritization, funding and implementation mechanism for constructing and maintaining infrastructure and economic development.

Other Recommendations

1. Sub-area plans have identified response sites but there is not enough funding to place container vans for all sites. Additionally, current planning does not identify public and private or industry-owned assets. Local communities are not up to date with National Incident Management System/Incident Command System (NIMS/ICS) nor are first responders trained in HAZWOPER, etc.

    A. The state of Alaska should work with industry to identify and develop primary, secondary and tertiary response infrastructure (and corresponding equipment) and train and sustain first responders.

    B. The state of Alaska should recognize that local contingency plans listing assets must be included in the Sub-area plans.

2. In federal waters the U.S. Coast Guard is in charge of navigational aids; NOAA and the U.S. Army Corps of Engineers are charged with mapping and bathymetry; and the Alaska Department of Natural Resources (DNR) is responsible for this in state lands. The private sector is also collecting data on leased areas.

    A. The state of Alaska should support, invest in and complete increased communications and navigational infrastructure, mapping, hydrographic and bathymetry with data shared using collaborative research and private-public partnerships.

B. The state of Alaska should coordinate with internal and external agencies and gather private sector data for completion of mapping, hydrographic and bathymetry data sharing.

3. Each region or community has their own separate plans for infrastructure development, but these plans are not incorporated into a holistic Alaska Arctic plan. Infrastructure development should be responsive to social, environmental and cultural impacts and that intermodal infrastructure should benefit economic and community development.

   A. The state of Alaska should initiate a comprehensive Arctic region economic and infrastructure assessment and plan.

   B. The state of Alaska should include in such a plan criteria (that identifies proximity, risk, geography and scale of challenge to include intermodal infrastructure) from which projects could be prioritized.

4. The state is operating under a banner of fiscal constraint – state, federal and local budgets are dwindling – while the vast majority of (and increasing) infrastructure projects are in the millions of dollars.

   A. The state of Alaska should establish infrastructure funding mechanisms for multiple infrastructure projects and should include incentives for cross-project planning and for public-private partnerships.

5. The Alaskan Arctic's hub communities have regional training facilities. Some programs are for high school students only or for adults only.

   A. The state of Alaska should create additional programs for adults and students in vocational training.

   B. The state of Alaska should develop Arctic workforce development and education opportunities for Alaska's workforce, to include ice navigation, marine mammal observation, spill response, SAR, pilotage, and engineering.

6. The state and federal governments should continue to work together to assure reliable delivery of adequate water and sewer service in all Alaska Arctic communities.

   A. Alaska should work with interested parties within the United States and other Arctic nations to investigate alternative approaches that are less costly to build, operate and maintain in small Arctic communities.

   B. Alaska should continue to encourage the U.S. Department of State to include fostering new technological approaches for in-home water and sewer infrastructure as part of the agenda for the U.S. chairmanship of the Arctic Council in 2015-17.

5.4 Oil, Gas, and Mineral Resources

Introduction

The state of Alaska has been a sovereign and active Arctic entity engaged in Arctic development and protection since statehood. Even before then, Alaska's citizens and communities pioneered Arctic resource development and sustainable living. With statehood came the promise that Alaska's significant land and resource base would build its economy and support its citizenry. In fact, the discovery of oil and gas on the Kenai Peninsula provided the economic justification for statehood. Today, oil and gas development provides roughly 90% of Alaska's state revenue, with minerals, timber, seafood, and tourism significantly contributing to the balance. Alaska has over 45 years of oil and gas development experience in the Arctic and over 100 years of mining experience. [19]

Background

The Arctic will inevitably see expanding development. The Alaskan Arctic is increasingly the focus of new commercial opportunities for resource development. Arctic sea ice is melting and newly opened shipping lanes promise better access to our shores and more efficient and expeditious delivery of extracted resources to markets across the globe. Mean estimates for undiscovered, technically recoverable resources in the Alaskan Arctic Petroleum Province include 30 billion barrels of oil and 181 trillion cubic feet of non-associated natural gas.[20] For example, North Slope basins hold as much undeveloped coal as the rest of the United States combined. [21] Red Dog Mine produces zinc, lead and silver ore from one of the largest base metal deposits in the world. High gold prices have brought increased exploration activity to the region and production has reached unprecedented levels. In 2012, Alaska's gold production reached 870,000 ounces, a volume not seen since the legendary Alaska Gold Rush days of the late 19th and early 20th century.[22] [23]

Although the vast mineral and hydrocarbon reserves make the Alaskan Arctic attractive for investment, development is challenged by distance to markets, limited infrastructure, costs and risks attendant to its remoteness, challenging weather and environmental conditions, and a

[19] Banet, Jr., Arthur C., *Oil and Gas Development on Alaska's North Slope: Past results and future prospect,* USDOI – BLM – Alaska, Open File Report 34, March 1991; See Table 1, www.blm.gov/pgdata/etc/medialib/blm/ak/aktest/ofr.Par.49987.File.dat/OFR_34.pdf (Accessed May 2013).
[20] The Arctic Petroleum Province encompasses all lands and adjacent continental shelf areas north of the Brooks Range-Herald arch tectonic belts and south of the northern (outboard) margin of the Alaska rift shoulder. USGS – *Assessment of Undiscovered Petroleum Resources of the Arctic Alaska Petroleum Province*, by David W. Houseknecht, Kenneth J. Bird, and Christopher P. Garrity (Scientific Investigations Report 2012-5147); http://pubs.usgs.gov/sir/2012/5147 (Accessed May 2013).
[21] Flores, R.M., G.D. Stricker, and S.A. Kinney. 2003. *Alaska coal resources and coalbed methane potential.* U.S. Geological Survey Bulletin 2198, 4 p., hhtp://pubs.usgs.gov/bul/b2198 (Accessed May 2013); Flores, R.M., G.D. Stricker, and S.A. Kinney. 2004. *Alaska coal geology, resources, and coalbed methane potential.* U.S. Geological Survey Digital Data Series DDS-77, 127 p. http://pubs.usgs.gov/dds/dds-077/ (Accessed May 2013); U.S. Energy Information Administration. 2012. *What is the role of coal in the United States?* U.S. Department of Energy website. Updated July 18, 2012, www.eia.gov/energy_in_brief/article/role_coal_us.cfm (Accessed May 2013).
[22] Lasley, Shane, *Mining News: 2013: A golden year for Alaska miners,* Petroleum News, Vol. 18, No.4, Jan. 27,2013; www.petroleumnews.com/pntruncate/636968834.shtml (Accessed May 2013).
[23] In addition, the Donlin Gold Project proposes to add another 1.5 million ounces of gold to the statewide production by the end of the decade.

dwindling subfreezing season necessary for maintaining ice roads and conditions suitable for safe travel and operation within the Arctic.[24] Despite this challenging environment and extraordinary costs, exploration and development investment in the Arctic has steadily increased and will continue to increase, if commodity prices remain high and if Alaska remains competitive for investment dollars.[25] Alaska should not ignore that it is in a global race to attract investment that will open new opportunities in the Arctic. To encourage new capital investment, and secure the benefits of new resource development upon which state and local communities depend, Alaska and our federal counterparts must continue to spearhead new strategies to keep Alaska competitive with other Arctic nations.

For over 50 years state agencies, including the Department of Environmental Conservation, the Department of Natural Resources, the Department of Fish and Game and the Department of Transportation and Public Facilities have provided thorough environmental oversight for exploration and development activities in the Arctic. Alaska has some of the most sophisticated interagency coordination and permitting processes in the country, with the expertise, experience and commitment to safely develop the Alaskan Arctic's vast resources.[26] With this history and experience, Alaska is well positioned to respond to increased resource development activity in the Arctic.

Protecting the environment is a key concern facing the Arctic; so too is ensuring a sound economy for its residents. Some Alaskan Arctic communities are currently supporting new resource extraction projects, recognizing that oil, gas and mining industries offer meaningful employment, stable cash economies and reliable municipal revenues that support clean water, sanitation, health clinics, airports and other infrastructure necessary for strong, safe and healthy communities. While circumstances differ between local governments, often resource development projects have meant an influx of new revenue sources. This new revenue has, in some cases, meant that local governments have the resources needed to expand emergency response and search and rescue capabilities, take an active role in oil spill preparedness, and implement meaningful measures to protect regional ecosystems and local food sources that are critical to a subsistence culture. While the U.S. Coast Guard, U.S. Environmental Protection Agency, the state of Alaska, and industries play a key role in oil spill planning, prevention and response, local governments also must be equipped to maintain and expand both critical infrastructure and train response personnel to meet the challenges of new on- and offshore

[24] *USGCRP. 2009. Regional climate impacts: Alaska.* in *T.R. Karl, J.M. Melillo, and T.C. Peterson (Editors), Global climate change impacts in the United States: A state of knowledge report from the U.S. Global Change Research Program. Cambridge University Press, New York, N.Y., p. 139-144, http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-reports.pdf* (Accessed May 2013).
[25] Haley, S., M. Klick, N. Szymoniak, and A. Crow. 2011. Observing trends and assessing data for Arctic mining. Polar Geography 34:1-2, 37-61.
[26] For example, Alaska's spill response planning system partners state agencies with industry. Under this structure the state is obligated for spill response planning and oversight and the responsible party is obligated to provide trained personnel and equipment for the response effort and clean-up. Each year, industry and pertinent state agencies conduct several spill response drills. No other state in the U.S. has a comparable program.

resource development.[27] Local resource development also holds the potential of increasing access to affordable energy in remote communities suffering from staggering energy costs.

Federal revenue sharing generated from oil, gas and mineral development is central to supporting these local economies. For example, revenue sharing from the National Petroleum Reserve-Alaska (NPR-A), in the form of Impact Grants, helps local governments build community infrastructure and fund programs such as teen centers and cultural education. However, although federal revenue sharing is in place for oil and gas leasing activities within the NPR-A, for leasing activities within the federal OCS it is not. Current federal law mandates revenue sharing from OCS development in the Gulf of Mexico, however.

New resource development opportunities both on- and offshore must be balanced against the potential impacts by incorporating appropriate mitigation and safeguards. Although the debate about potential risks to the environment and subsistence resources is often heated and emotional, it is critical for the state of Alaska to ensure a balance is met (see inset box for example), and that debates remain constructive and oriented towards finding workable solutions. Local governments that have active resource development within their boundaries acknowledge that in order to support and sustain the communities in their region, they must work collaboratively with the state and industry. This includes ensuring that rural development includes protections for subsistence resources, cultural identity and lands, while providing needed infrastructure, services, and employment training opportunities.

Local government, state, and industry collaboration occurs with frequency and success in Alaska. Arctic communities affected by new development have rightly demanded to be heard during all phases of a project's development. The manner and scope of this community engagement continues to evolve as the state, communities and industry work to meet new concerns and demands. For example, in 2010 the state formally implemented a Health Impact Assessment (HIA) program within the Department of Health and Social Services and is working with federal agencies to develop HIAs as part of the process for large-scale projects.[28] These HIAs evaluate the potential health effects of a project on a population and the distribution of those effects, so that communities and other stakeholders can preemptively develop strategies to minimize adverse impacts and maximize health benefits to a population near a proposed project. But these kinds of initiatives are not new. Twenty-three years ago the state was awarded the National Planning Award for its exemplary outreach to rural communities.[29] Communities and

[27] See, Charlotte Brower, Mayor North Slope Borough, Congressional Testimony before the Committee on Senate Energy and Natural Resources in support of S. 1273, the "Fixing America's Inequities with Revenues Act of 2013."

[28] Health Impact Assessment work first began in Alaska in 2004 when the North Slope Borough conducted two HIAs for resource development projects. HIAs are used elsewhere in the country, although the state of Alaska views its HIA program as a key component of its "best practices" approach to large project permitting. The state formalized the program in the Department of Health and Social Services in 2010. State of Alaska Epidemiology Bulletin No. 19, July 25, 2011.

[29] The National Planning Award's Paul Davidoff Award for Community Outreach was presented to the State Department of Natural Resources in 1990 and is on display in the Department's office.

regional organizations also take the lead in creating forms of community engagement that will produce meaningful and lasting agreement about resource development decisions.

Discussion and Considerations

To take advantage of the expanding activity and global interest in the Alaskan Arctic, and to craft the course and pace of development in the state and in the region, Alaska must invite better communication and partnership with federal entities.[30] Additionally, Alaska must take a more assertive and proactive role on the national and international stage where Arctic resource development policy is debated.

Alaska is well-suited to contribute to the national and international dialogue on resource development in the Arctic. The state of Alaska, its legislature, relevant agencies, and the Governor – representing all of Alaska's residents – intends to lend a strong voice of experience and leadership to resource management and development opportunities as they emerge in the Arctic. Alaska should continue to build a common outlook for the Arctic by building on existing and potential partnerships with national, international, commercial, academic and non-government entities.

In addition to focused participation in national and international forums, Alaskans must work diligently at home to speak with a unified voice as Alaska moves forward to advocate its sovereign rights as an Arctic state within these arenas. Pro- and anti-development organizations from inside and outside the state, which often present views that are not in keeping with the perspectives of most Alaskans, lobby the Federal Government, influence resident stakeholders, and ultimately impact federal actions. This further highlights the need for Alaskan stakeholders to collaborate and identify priorities for sustainable resource development that include environmental safeguards, and approach federal decisions makers with a unified voice on all development issues.

A more unified voice is crucial to promoting meaningful negotiations with federal agencies and Congress as the state advocates for additional development opportunities onshore and offshore in the Alaskan Arctic and seeks more advanced capabilities for emergency preparedness and response. With declining North Slope oil production, industry access to federal land and Outer Continental Shelf (OCS) waters is critical to future exploration and development success, and ultimately to Alaska's economic stability. Recent federal actions such as the National Petroleum Reserve – Alaska (NPR-A) Integrated Activity Plan, the National Ocean Policy, and the Arctic National Wildlife Reserve (ANWR) Comprehensive Conservation Plan threaten to restrict

[30] Improving the state's relationship with its federal counterparts is prudent, particularly in light of the fact that the Federal Government has primary jurisdiction over nearly three quarters of the U.S. Arctic's land mass. Alaska can help, through example and guidance, as federal agencies work to coordinate and reduce duplication of over 20 federal agencies involved in the U.S. Arctic.
See 04/04/2013 press release, www.doi.gov/news/pressreleases/interagency-working-group-calls-for-integrated-management-and-planning-for-a-rapidly-changing-Arctic.cfm# (Accessed August 2013). The Parnell Administration and Alaska Congressional Delegation have been vocal advocates on various federal energy issues (e.g., ANWR development, OCS, NPR-A, OCS revenue sharing, etc.).

opportunities that are critical to the future of Alaska's economy. At least one major oil company complained in 2013 that regulatory uncertainty in the OCS effectively stalled exploration activities, even after its leases were awarded.[31] [32] Forging stronger alliances within the state, between local governments, communities, Alaska Native entities and other resident stakeholders, will be key in addressing these issues on the federal level.[33]

Resource development is critical to ensuring healthy local economies. Alaska and the Alaskan Arctic is a key component to independent U.S. energy security. To meet national, state and local goals for energy production, and to meet the challenges of adapting to rapidly changing Arctic conditions, the state of Alaska must work with industry, federal agencies, and local/regional communities to encourage the development of new technologies, invest in needed infrastructure, and resolve burdensome legal and regulatory impediments. To that end, considerations should include to:[34]

- Promote better local, state and federal agency collaboration and coordination to facilitate permitting of resource extraction projects
- During all large-project development, ensure that the permitting process includes sufficient time, to allow for meaningful community participation, input and reflection
- Strategically build connectivity between communities, development projects and markets including access to roads, ports, facilities, power generation and transmission, and communication
- Implement localized resource revenue sharing to support infrastructure development by Arctic communities
- Support adequate funding for state-directed baseline data collection and develop reasonable and predictable standards for determining when sufficient data is collected to commence development projects and for ensuring data storage for future access and use
- Solve regulatory uncertainty – especially as it relates to OCS development, remote incinerator rules and future air quality regulations, effluent limits, and Endangered Species Act listings

[31] Press Release, ConocoPhillips Alaska, April 10, 2013, Regulatory Uncertainty Leads ConocoPhillips to Put 2014 Chukchi Sea Exploration Drilling Plans on Hold.

[32] However, it is important to note that the U.S. Bureau of Ocean Energy Management and the U.S. Bureau of Safety and Environmental Enforcement are working with company input to develop Alaska Arctic standards that are based on current OCS development permit conditions. According to the Department of Interior, these standards will be out before the year-end and should have no effect on existing permit conditions and therefore no effect on whether or not an oil company with current leases and permits decides to drill in 2014.

[33] Indeed, on May 20, 2013, Governor Parnell's administration, joining forces with the Arctic Slope Regional Corporation and the North Slope Borough, proposed to help finance exploration in the ANWR 1002 Area. Although the Federal Government has been reluctant to open ANWR to exploration, presenting a united front and offering $50 million in state dollars may help overcome this past resistance. Not all Alaskan's agree with this effort however, with opposition presented by Gwich'in tribal governments who fear the area is critical to the Porcupine caribou herd and others who support permanent protection for the coastal plain, which is an integral part of the protected wildlife refuge.

[34] In 2013, the Oil, Gas and Mining – Resource Development team members interviewed AOGA, RDC, AMA, NANA, Donlin Gold and Calista. Policy Team minutes: 05/03/13 and 05/10/13.

To seize the emerging opportunities in the Arctic, and advance energy independence for Alaska, its rural communities and the U.S., the state of Alaska and pertinent federal agencies must address these issues and lead the way for Arctic resource development strategy and coordination.

Conclusion: Policy Recommendations

Strategic Recommendations

- Implement regional planning efforts that allow local stakeholders to identify and communicate to state and federal agencies priorities for education, infrastructure, and development.
- Develop a mechanism for revenue sharing from resource extraction for impacted communities, developing perpetual trust funds (where lacking) to finance community needs beyond the life of non-renewable resources.

Other Recommendations

1. Alaska must continue to actively promote oil, gas, and mineral exploration and development investment opportunities onshore, offshore and within the extended continental shelf in a manner that is safe, respects people and the environment, and that maintains a level of production that meets the economic needs of the state, local communities, and industry.

    A. The state of Alaska should continually advance new technology to improve safety and mitigate impacts to the environment.
    B. The state of Alaska should establish revenue sharing from resource extraction for Alaska's impacted communities in areas where such are lacking and advocate for federal revenue sharing from opportunities on the Arctic outer continental shelf.
    C. The state of Alaska should encourage use of those funds to develop perpetual trusts, such as the Alaska Permanent Fund, that will help fund community needs into the future beyond the finite life of non-renewable resources.
    D. The state of Alaska should continue to prepare the local workforce to participate in all aspects and all phases of resource development including research, monitoring, regulatory oversight, project development, construction, operation, remediation, and reclamation.

2. To ensure a healthy, secure, and safe Arctic region, Alaska must partner with federal agencies to advance shared goals, like research collaboration and strategic planning.

    A. The state of Alaska should assess and support new infrastructure that may advance resource development opportunities.

B. The state of Alaska should coordinate with industry, universities, other research organizations and countries to enhance sharing and accessibility of scientific data to better inform state and federal permitting and protect the environment.
C. The state of Alaska should collaborate with industry and federal agencies to continue to update hydrocarbon and mineral resource mapping and estimates in the Alaskan Arctic.
D. The state of Alaska should work with the federal government to develop a coordinated permitting system for Arctic assets, to include OCS revenue sharing.
E. The state of Alaska should promote science-influenced decision making that incorporates local and traditional knowledge of Alaskans and encourages adaptive approaches guided by ongoing research and monitoring.

3. Greater interest by industries in Alaskan Arctic opportunities will increase the number of requested resource extraction permits, necessitating more efficient permitting and coordination by local, state and federal entities.

A. The state of Alaska should work with federal agency land managers to achieve greater access, as well as clear and predictable regulatory standards, that together help to attract new industry investment in the Alaskan Arctic.
B. The state of Alaska should lead joint federal and state working groups to improve coordination and communication during permitting of resource development projects.
C. The state of Alaska should develop region-wide planning that allows local stakeholders to identify regional priorities for development and improve understanding and consideration of the cumulative impacts of human activities in the region.
D. The state of Alaska should coordinate with industry, local communities, regions and, when appropriate, neighboring Arctic nations, to identify future needed baseline data collection, research and monitoring that would augment and enhance state and federal permit processing.

4. Alaska has extensive experience and knowledge about Arctic resource development that should inform Arctic policy formation in federal and international arenas.

A. The state of Alaska should continue fostering strong partnerships between state and local resource industry groups, such as the Alaska Miners Association, Resource Development Council and Alaska Oil and Gas Association, in recognition of the contribution these local industry groups will make as Alaska establishes itself as a leader in Arctic policy and expertise.

[Call-out Box]

Leadership by Local Communities: NANA Regional Corporation and Red Dog Mine

Local communities and regional organizations have made community engagement a priority and one aim is to produce meaningful and lasting agreement about resource development decisions. We look to the Red Dog Mine, located 90 miles north of Kotzebue, for a good example. Owned by NANA Regional Corporation, an Alaska Native Corporation created by the Alaska Native Claims Settlement Act of 1971, Red Dog Mine is operated by Teck, Alaska, formerly Cominco. Before the initial development began, NANA directly engaged in a decades-long dialogue with their Inupiat shareholders to determine if resource development was right for their region. As a result of this extensive dialogue, in 1982 NANA and Cominco signed an innovative operating agreement that protects the subsistence resources of the Inupiat of Northwest Alaska and contributes to the regional economy with the production of valuable zinc and lead concentrate at the Red Dog Mine. The 1982 agreement also created a management and oversight committee consisting of members of NANA and Cominco (now Teck Alaska, LLC) and a Subsistence Committee consisting of Elders from neighboring communities who regularly work with mine officials to address local concerns regarding subsistence impacts.

The mine has proven to be an economic catalyst in the region while protecting the Inupiat way-of-life. For example, to date NANA has received $894 million in net proceeds from the mine, of which more than $515 million has been shared with other regions as part of the 7(i) sharing provisions of ANCSA. The Northwest Arctic Borough, the region's home rule borough, has received $118 million in payments-in-lieu-of-taxes; and, on average, approximately 57% of the mine's employees are NANA shareholders. The Red Dog Mine is a success story and one in which rural communities are leading the decision making process for resource development in collaboration with state agencies, Native corporations, and industry leaders. Rural communities are balancing difficult decisions and in this case were able to establish a flexible system that allowed for resource development while protecting customary and traditional ways of life.

Rural communities will need to continue leading decision making and collaborative partnerships as new resource development opportunities are balanced against potential negative impacts. Although the debate about potential risks to the environment and subsistence resources is often heated, it is critical for the state of Alaska to ensure a balance is met and appropriate mitigation strategies and other safeguards are in place. The development of resource access roads is one area where this debate can be found.

NANA Regional Corporation is exploring economic development opportunities for its shareholders that have the potential to increase job opportunities, reduce energy costs and increase access to other resources. One project being pursued by NANA in partnership with NovaCopper is aimed at developing two large copper deposits in the Ambler Mining District located east of Kotzebue in the Upper Kobuk area. To make this project viable for the

development phase of the mine, it is necessary to reduce the cost of transporting mineral ore out of the district. NovaCopper and the state of Alaska are working with communities in the Upper Kobuk area to weigh both the benefits and the risks of developing the new road. Some communities are supportive because of potential benefits, including access to services and supplies that can address the staggeringly high cost of living. Other communities worry that a public-use road will bring with it more non-resident hunters and increased pressure on the caribou herd upon which they rely as a subsistence and cultural resource. In fact, locals report that last year a large number of hunters were dropped into the Ambler/Kobuk area for caribou hunting which forced the caribou herd to turn to the northeast resulting in local resident hunters having to travel further at greater cost to hunt.

Resident hunters worry that building a new road would aggravate further the growing pressure on the caribou herd. NANA, the state, local communities and regional and local Native entities are collaborating to ensure the best option for access to resources. One option being considered is to construct an industrial-use only road with limited access. It should be noted that the state has a history of managing caribou sustainably in the midst of resource and road development. This dialogue about the risks and benefits of new access is ongoing, with more discussion planned as the project is still in the exploration phase and an environmental impact study on the road has not yet commenced.

5.5 Security and Defense

In 2014, the Commission will comment on the recently release DOD Arctic Strategy, provide additional information about Alaska's Division of Military and Veteran's Affairs (DMVA) and the National Guard. At the same time, the Commission will expand on the different types of security, including energy, food, environmental, and economic. Recommendations for this subject matter area will also be drafted in 2014.

Introduction

Though Alaska is not part of the lower 48, it is part of the homeland that the Department of Defense (DOD) defends. Alaska is a critical part of National defense because Alaskans are American citizens, Alaska's natural resources fuel the U.S. and Alaska's strategic location protects everyone in North America. This should warrant more defense personnel, defense hardware and defense technologies. Recognizing the challenges that federal agencies' budgets, including DOD's, face and will face into the future, Alaska must consistently make the case that the state is worth DOD investment. A secure Alaska is the Gateway to a safe North America – it is not enough to guard the gates at Hawai'i and Guam.

An emerging Arctic, with more activity due to diminishing sea ice, is a key aspect of the need for continued and long-term investment. The state needs a visible presence in the Arctic. Anyone sailing on (or under) or flying through America's sovereign space in its northernmost region must know that we will meet and defeat any threat to our homeland.

As part of this new and expanded mission, the state deserves: a strengthened and active Coast Guard; response ability along Alaska's western coast, including a deep draft port; greater ability to detect submarines in the Bering, Chukchi and Beaufort seas; better domain awareness and tracking of maritime activity; and improved communications, navigation and weather infrastructure.

Alaska has been and will continue to be a strong partner alongside America's military forces. For example, the state provided $80M in funding for the Tanana bridge extension, thereby facilitating the military's access to premier training grounds. Currently, the state is supporting renovations to Joint Base Elmendorf-Richardson's (JBER) National Guard Armory and the Alaska Industrial Development and Export Authority (AIDEA) is financing the transition of Sector Anchorage, saving the Coast Guard as much as $1.5M/year. The state of Alaska is willing to be a financial partner in projects that are in the state's interest. The state's security and defense are of paramount importance.

Background

The U.S. Department of Defense Arctic Strategy, released November 22, 2013 at the Halifax International Security Forum, identifies that a desired end-state for the Arctic is: 'a secure and

stable region where U.S. national interests are safeguarded, the U.S. homeland is protected, and nations work cooperatively to address challenges.' Two main supporting objectives are: (1) Ensure security, support safety, and promote defense cooperation; and (2) Prepare to respond to a wide range of challenges and contingencies.

The DOD Arctic Strategy states that the Department will accomplish these objectives in the following ways:

- Exercise sovereignty and protect the homeland
- Engage public and private sector partners to improve domain awareness in the Arctic
- Preserve the freedom of the seas in the Arctic
- Evolve Arctic infrastructure and capabilities consistent with changing conditions
- Support existing arrangements with allies and partners while pursuing new ones to build confidence with key regional partners
- Provide support to civil authorities, as directed
- Partner with other departments and agencies and nations to support human and environmental safety
- Support the development of the Arctic Council and other international institutions that promote regional cooperation and the rule of law

The strategy notes the uncertainty of future projections about the Arctic Ocean and climate change. It also states that 'fiscal constraints may delay or deny needed investment in Arctic capabilities, and may curtail Arctic training and operations.' DOD will also attempt to mitigate a public narrative that speaks to rivalry and conflict in the Arctic. DOD will also be careful to not be too aggressive in taking steps to anticipate future Arctic security risks so that mistrust & miscommunication will not materialize.

U.S. Northern Command (USNORTHCOM) has the primary responsibilities for addressing Arctic defense and homeland security. It provides Strategic-Level Command through the Commander of U.S. Northern Command (CDRUSNORTHCOM). CDRUSNORTHCOM is the geographic combatant commander responsible to the Secretary of Defense and the President for a range of missions within his assigned area of responsibility (AOR), which includes North America and the Arctic to the North Pole. Principle missions include homeland defense, defense support of civil authorities, and security cooperation activities (interactions with foreign defense establishments). CDRUSNORTHCOM is responsible for the planning and conduct of these missions throughout this area of responsibility, which includes the Arctic. CDRUSNORTHCOM is also responsible for the advocacy for DOD Arctic capabilities.

At the operational level, the Commander of Joint Task Force Alaska (CJTF-AK) has responsibilities. JTF-AK is a subordinate organization to USNORTHCOM. CJTF-AK also serves as Commander, Alaskan Command (ALCOM), a sub-unified command to Commander, U.S. Pacific Command (USPACOM), another geographic combatant commander. ALCOM and

JTF-AK are serviced by one combined staff; responsibilities are so intertwined that their most recent campaign planning action resulted in a combined mission statement: Alaskan Command and Joint Task Force Alaska, along with trusted partners, conduct homeland defense, civil support, and mission assurance in Alaska to defend and secure the United States and its interests.

JTF-AK has been tasked with operationalizing the USNORTHCOM missions in the Arctic. DOD is lead for the homeland defense mission. Most other missions (i.e., defense support of civil authorities) would be conducted in support of a state-led agency or other lead agencies. JTF-AK planning is accomplished by developing Arctic concepts of operations (CONOPS). These CONOPS are basically plans for how key USNORTHCOM missions would be executed in the Arctic. CONOPS also facilitate identification of required capabilities. Potential CONOPS to be developed include: Arctic Search and Rescue, Arctic Domain Awareness, and Arctic Communication.

In order to better educate DOD of the uniqueness of both Alaska and the Arctic operational environment, ALCOM/JTF-AK created a monthly Arctic Speaker Series. The Arctic speaker series educates the staff and other Arctic stakeholders on various parts of Alaska and the Arctic. The range of speakers is very diverse in order to provide a broad knowledge base for the staff.

ALCOM/JTF-AK has also partnered with the University of Alaska, with a memorandum of understanding on Arctic information sharing, promoting shared DOD-Academia understanding of emerging Arctic requirements, capabilities and situational awareness. The collaboration is a productive group of organizational representatives who share knowledge of the Arctic and work together to prepare for future challenges as the Arctic becomes more accessible and vulnerable to natural and man-made disasters. JTF-AK has an action plan with University of Alaska Fairbanks (UAF), which provides specific goals for interaction between the two organizations.

Furthermore, the Alaska Arctic Working Group (AAWG) is an enduring organization made up of ALCOM/JTF-AK staff and external armed forces stakeholder representatives responsible for centralized planning and execution of day-to-day activities in support of the JTF-AK Arctic mission. The AAWG identifies existing operational Arctic capabilities and shortfalls; establishes and maintains enduring partnerships with key Arctic stakeholders; synchronizes Arctic exercises; and develops, maintains, and shares Arctic knowledge and situational understanding in support of USNORTHCOM and USPACOM Arctic objectives.

Currently, the DOD's Arctic Operational Focus is on Search and Rescue (SAR) and Homeland Defense. Search and Rescue operations occur through the 11th Rescue Coordination Center (RCC), which is responsible for coordination of aeronautical search and rescue within the state of Alaska. The RCC also assists the U.S. Coast Guard and the Alaska State Troopers for other search and rescue cases. Additionally, the Alaska Air National Guard provides a 24/7 search and rescue alert. Homeland Defense occurs through the Alaskan NORAD Region (ANR), which

conducts aerospace control within its area of operations and contributes to NORAD's aerospace warning mission. This mission is conducted on a 24/7 basis.

The focus areas of NORAD's mission are 1) air sovereignty: responding to a threat from outside the border; 2) asymmetric threat: responding to a threat from within the North American border; 3) strategic threat: carrying out a contingency plan; and 4) consequence management: responding to the outcomes of controls.

Demand for NORAD is projected to increase with heightened regional activity including commercial traffic and tourism. New features might include: underwater/shore-based sensors; unmanned aerial systems; national reconnaissance satellites; more patrol aircraft; and surface/subsurface vessels.

Potential future DOD Arctic operational focus areas include Search and Rescue exercises with other Arctic nations (exercising the Arctic Search and Rescue Agreement); science and technology solutions for Arctic domain awareness; and exercise logistics support to U.S. Coast Guard in the event of an oil spill.

ALCOM/JTF-AK is aware of the challenges in the Arctic and the increasing maritime traffic due to the melting ice. Search and Rescue (SAR) is a major concern. A single cruise ship accident off of the North Slope could easily overwhelm current SAR capabilities. DOD is planning and advocating for better practices and more capabilities to counter future Arctic issues like these.

Conclusion: Policy Recommendations

National Arctic security issues will be reviewed for the DOD agencies and the Coast Guard by the Commission during 2014.

5.6 Marine Transportation

Introduction

The extent of summer sea ice reached a historic low in September 2012, opening more Arctic waters to summer marine transportation. The U.S. Coast Guard (Coast Guard) reported that from 2008 to 2012, total annual vessel traffic in the Arctic region grew from 120 to 250, an increase of more than 100%. The growth rate was particularly high for tank vessels, followed by tugs and other cargo vessels. Similarly, Bering Strait transits have increased by 100% between 2008 and 2012, from 220 to 480. There have been ongoing efforts to study these increases and to address their implications. As the maritime environment of the Arctic becomes more accessible, those most familiar with the Arctic – such as the indigenous peoples who live there, the oil and fishing industries, and the state-licensed marine pilots – have a lot to contribute to policy development affecting the region.

The Bering Strait is a traffic funnel for two major maritime transportation routes: the Northern Sea Route and the Northwest Passage. Arctic marine traffic is primarily driven by globalization of the region, the ability to move cargo faster, and the linkage of Arctic natural resources to global markets. Sea ice retreat provides for potentially greater marine access, shorter routes, and longer seasons of navigation. As the ice retreats, advanced ice-capable and icebreaking ships from both government and industry will allow Arctic marine operations in many new and uncharted areas.

Background

A number of efforts over recent years have worked to address marine transportation issues. In 2009, the Arctic Council approved the Arctic Marine Shipping Assessment (AMSA) Report, which made a number of recommendations to enhance Arctic marine transportation safety, protect Arctic people and the environment, and build Arctic marine infrastructure.[35] The Arctic Council Protection of the Arctic Marine Environment Working Group (PAME) continues to follow up on recommendations found in this groundbreaking document.

The International Maritime Organization (IMO) is the United Nations agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships. The IMO, since 2010, has been developing a draft international code of safety for ships operating in polar waters – the Polar Code.[36]

The Alaska Northern Waters Task Force (ANWTF) issued a report in 2012 with recommendations that drew on input and testimony from universities, U.S. military, non-

[35] www.pame.is/amsa-2009-report
[36] www.imo.org

governmental organizations and dozens of state and federal agencies as well as from local communities and residents from around the state of Alaska.

Complementing other federal efforts, the U.S. Committee on the Marine Transportation System (CMTS) issued a report in 2013, titled U.S. Arctic Maritime Transportation System: Overview and Priorities for Action 2013. This collaborative committee is comprised of the federal agencies with interests, responsibility and authority in matters pertaining to the Arctic. It follows AMSA recommendations and was directed via the Coast Guard Authorization Act of 2010.[37]

The U.S. Coast Guard vision for operating in the Arctic Region is to: 'ensure safe, secure and environmentally responsible activity in the Arctic.' The new USCG Arctic strategy released May 21, 2013 focuses on three strategic objectives: improving awareness; modernizing governance; and broadening partnerships (domestic and international).

The strategy also recognizes other factors that will be key, including: building national awareness of the Arctic and its opportunities; strengthening maritime regimes; improving public-private relationships; and identifying future requirements and resources. The Coast Guard notes that the Arctic is not a new venture for the Service. It has a long history in Alaska since it was purchased from Russia in 1867 and a long history of operating the nation's polar ships. These experiences provide many historic lessons.

For long-term success the strategy notes as important the following approaches: enhancing public-private partnerships to implement best practices and respond to challenges; increased federal interagency cooperation; increased international cooperation at the Arctic Council and other organizations; use of advanced science and technology applied to the Arctic; and use of risk-based management to protect the Arctic environment.

The document establishes the Coast Guard's strategy for operations in the Arctic given the realities of today's geo-strategic context. Future development of the Coast Guard's enhanced capability in the Arctic will evolve around the three objectives noted above and engagement with a host of partners and stakeholders. The Coast Guard is the primary federal maritime agency in the region responsible for multiple missions including marine safety, environmental protection, maritime security and law enforcement in the United States Arctic Ocean. In the state, the Alaska State Licensed Marine Pilots are charged under Alaska law to protect life, property, and the marine environment. They have an important role to play in homeland security issues and in helping the state and industry to establish best practices for safe development of the Arctic.

[37] www.cmts.gov

Discussion and Considerations

Vessel traffic through the Bering Strait is increasing with Arctic resource development and exploration (oil and gas); tankers (along Russia's Northern Sea Route); offshore support vessels; bulk carriers (hard minerals); and passenger vessels (cruise ships). At the same time, Unimak Pass is a major constriction point, on the Great Circle Route, in the Eastern Aleutian Islands. Currently 4,600 vessels transit the route annually and this number is expected to increase regardless of Arctic development. The remoteness of the Bering Strait and Unimak Pass complicate any incident – whether vessel grounding, collision or hazardous spill – with extremely challenging logistics.

Alaska Department of Commerce, Community, and Economic Development (DCCED) is working with the University of Alaska Fairbanks on an Arctic shipping study to assess trends in global commerce and trade expected to affect use of Arctic shipping routes. The study will also identify needed infrastructure to address safety of navigation and to position Alaska to take advantage of affordable energy and global promotion of trade and economic development associated with new Arctic maritime transportation.

The Coast Guard does not have a permanent operational base north of the Aleutian Islands and is operating solely in a seasonal surge capacity reflective of increased human activity in the Arctic. The current federal fiscal situation calls for prudent planning in an atmosphere of uncertainty and lean budgets for the foreseeable future. U.S. federal agencies involved in Arctic operations lack appropriate Arctic capable ships, small boats, aircraft and marine port infrastructure in the region. The Coast Guard's need for more ice-capable assets is well-documented. The state of Alaska has supported the planning and funding of ice breakers and ice-capable vessels in the U.S. government's inventory of multi-agency fleet assets.

It is important to plan now in anticipation of the growth in vessel traffic and its impact on the environment and on the people who live there. As traffic increases, standards and regulations to govern vessels in Arctic waters will need to be strengthened. Since many authorities govern the waters, these agreements will fall under state, national and international jurisdictions. Alaskans should be informed about and involved in the process of developing policies on these issues. Special attention should be paid to the Bering Strait, the "gateway" to the Arctic Ocean, which is also proximate to local residents hunting, fishing, and subsistence needs.

The Coast Guard, state of Alaska and counterparts in Russia must work together to develop shipping lanes and operating protocols for vessels transiting the Bering Strait; and the Coast Guard and the state of Alaska must do the same with regards to Unimak Pass. The United States and Russia must cooperate to develop a voluntary, seasonal (summer and open water) marine traffic routing scheme for the Bering Strait Region, which could then be submitted to the IMO for approval. The United States should also work with Canada to resolve their long-standing boundary dispute in the Arctic.

There are currently no Arctic-specific regulations in place for marine safety and environmental protection in the U.S. Arctic. However, there are proposals for the IMO mandatory Polar Code (international), and non-tank vessel rules (domestic U.S. regulations) are newly implemented. As the IMO moves toward finalizing the Polar Code, the Coast Guard and other federal agencies should take a very active role in promulgation of regulations to mitigate risks associated with increased vessel traffic in the Arctic region.

There will also be future Arctic regulations relating to emissions, discharges (effluent, garbage, etc.) and other issues (such as routing measures) as the traffic in the area continues to build. The state of Alaska supports the development of the Polar Code and domestic U.S. regulations that do not curb economic activity but inform business planning for commercial activities in Arctic waters while preserving subsistence and supporting environmental sustainability. Any regulations being considered should be reviewed by the state of Alaska, and state agency experts on the IMO US delegation. Where applicable the state of Alaska should take advantage of participation in IMO meetings.

Especially important to residents in the Alaskan Arctic is the threat that increased commercial activity creates and the unintended consequences for subsistence users and food security. These include changes in migration patterns, risks to subsistence hunters/fishers and decreases in stocks, as well as risks of hazardous spills occurring.

Maritime operations off the Alaskan Arctic coast depend on the ability to communicate with modern technology to address the needs of every possible activity in the Arctic. Data and voice communications are critical to any public or private agency achieving success – the state of Alaska may have a role in investing in this infrastructure as a partner with industry. For instance, the Alaska Aerospace Corporation, a state of Alaska entity, has a launch complex on Kodiak Island that could put polar-orbit satellites into space to meet communication needs in the Alaska Arctic. Additionally, the Statewide Broadband Task Force released a report in 2013, *A Blueprint for Alaska's Broadband Future,* exploring the current state of Alaska's broadband infrastructure and outlining recommendations including satellite launches as well as polar fiber deployment.

The AMSA and the National Strategy for the Arctic Region (NSAR) note the critical importance of adequate hydrographic readings and charting for the U.S. maritime Arctic and the entire Arctic Ocean. The National Oceanic and Atmospheric Administration (NOAA) has the primary responsibility for charting the waters around Alaska and adequate funding must be provided to begin a process of charting critical Arctic areas where increased marine use is occurring, or potential sites for increased Arctic maritime infrastructure. At the same time, year-round ice forecasting will allow ice-capable ships to find the safest route through the seas during the summer months, and ice-breaking ships will know the path of least resistance to follow in the winter.

As part of an integrated approach to the Alaskan Arctic, an enhanced planning process between state and federal agencies should be encouraged. The state of Alaska, industry and Alaska Natives must be an integral part of the planning process. As part of this process, there needs to be regulatory certainty in support of state and local economic activity. This is to encourage a transparent and delineated regulatory process from initial resource identification to economically viable end usage.

Conclusion: Policy Recommendations

Strategic Recommendations

- Encourage development of appropriately integrated systems to monitor and communicate Arctic marine information, and continue state and federal support for programs such as the Alaska Marine Exchange.

Other Recommendations

1. Alaska's maritime environment, whether through Unimak Pass or the Bering Strait, faces increased vessel traffic.

    A. The state of Alaska should support development of a Polar Code that meets the state's interests and recognizes its priorities, while developing practical and voluntary measures that encourage best practices.

    B. The state of Alaska should continue to support further development of the AIS system established by the Alaska Marine Exchange.

    C. The state of Alaska should work to establish IMO- and Russian-endorsed shipping routes.

    D. The state of Alaska should demand that the United States ratify the Law of the Sea Treaty and submit an extended Continental Shelf claim to ensure resources are appropriately retained for both Alaska and the United States.

2. The Alaskan Arctic is sensitive to offshore resource exploration and production.

    A. The state of Alaska should demand federal regulatory certainty and clarity in regards to resource exploration.

    B. The state of Alaska should endorse existing and encourage examination of future Arctic operating practices.

    C. The state of Alaska should establish regulatory standards for production of offshore resources and their transportation to market.

D. The state of Alaska should work with the U.S. Coast Guard to update the Coast Pilot - a reliable and efficient source of information for mariners that gathers all pertinent and relevant information in one accessible and searchable location, ideally covering navigation of the Bering Sea[38] and Arctic waters.

E. The state of Alaska should continue to support the Alaska Maritime Training Center (Alaska's Institute of Technology) at Seward in its efforts to develop a world-class facility for training in Arctic operations and ice navigation.

3. Decreasing ice increases the size of the Federal Government's area of responsibility, which results in challenging resource prioritization and directly impacts the state of Alaska's security, environment and economy.

A. The state of Alaska should continue its strong support for replacement of the Coast Guard's Polar class icebreakers and other ice-capable cutters for conducting Arctic operations in coastal Alaska.

B. The state of Alaska should build on current efforts to identify a deep draft port[39] and identify additional critical aviation and maritime logistics; including a suitable location to build a C-130-size aircraft hangar (which could be collocated with a deep draft port).

C. The state of Alaska should encourage the development of a deep draft port or ports, which could include negotiating public and private long-term investments. An Alaska Arctic Port Authority, or similar body, could facilitate public-private partnerships for investment, and development of the management strategies for future port operations.

4. More effective coordination on the federal level, in consultation with representatives of the state of Alaska, should be established in order to develop priorities and identify needs associated with developments in the Arctic, including transportation.

A. The state of Alaska suggests that the Coast Guard lead coordination amongst the Committee for the Marine Transportation System (CMTS) agencies for activities in the Arctic and should be adequately funded to carry out its duties.

B. The state of Alaska should continue to support a single system to monitor vessel traffic in the Arctic. The Coast Guard and state of Alaska should support and facilitate such a comprehensive system. A system could also transmit information on ice and weather, ship's speed, and closed or sensitive areas for navigation.

[38] For example; the Canadian 'Arctic Voyage Planning Guide' includes nautical charts, tide and current tables, radio aids, lights, buoys, regulations, IMO guidelines and more - http://geoportal.gc.ca/eng/Gallery/MapProfile/5#wb-tphp Another example is the Coast Guard's Coast Pilot, which has detailed information for other coastal areas of the U.S., but not yet for Arctic waters.

[39] Alaska Arctic Deepwater Ports Study (USACOE AK DOT leads)

5. The Governor and his staff work as a team to leverage state agency information and local input in developing and communicating the state's position to federal entities, including the Coast Guard. While the state has frequent communication with Coast Guard District 17 and Headquarters leadership, it is increasingly difficult to navigate the complex and multi-faceted traffic rules and patterns, navigation aids, OCS activities, fish and wildlife resources, risk assessment, response, community needs and other issues as they pertain to maritime transportation, transportation infrastructure, and planning.

    A. The state of Alaska should have an Arctic specialist who acts as the liaison between industry, the public and private sectors, and indigenous groups; tasked with advocating the state's position to the Coast Guard in Arctic-related maritime and intermodal transportation policy matters. Such a position should utilize valuable local knowledge and input in developing policy and have a budget sufficient to support its efforts.

5.7 Response Operations: Search and Rescue/Oil Pollution

In 2014, this subject matter area will add Search and Rescue information and recommendations, and address additions to the Oil Pollution Prevention and Response section, including emphasizing shipping concerns, as well as national and international efforts to address this issue. This section will also consider local/regional government assets, community response and planning processes.

Introduction

Retreating Arctic sea ice is opening up a once inaccessible region to marine transportation, with corresponding concerns raised about the integrity of safety and security in the Alaskan Arctic. With increased onshore and offshore resource development and shipping in the Arctic, the state, local communities and federal agencies must be equipped to meet new challenges, ensuring that risks are carefully evaluated and addressed.

Background

Currently, the U.S. Coast Guard (Coast Guard) is engaged in cooperative agreements with Canada on search and rescue, marine environmental protection, and icebreaking, which could all be strengthened.

As part of this effort, it is worth noting that the Coast Guard and the Alaska Air and Army National Guard respond to most Arctic, and rural, requests for assistance. The proposed development of offshore natural resources has highlighted the need for increased response and recovery capability in the Arctic. Alaska must have the capability to house a C-130-size plane overnight in sub-zero weather. This hangar can also provide a staging area to coordinate the evacuation of survivors of a small cruise ship, if one were to abandon ship in the Arctic. Nothing of this sort exists north of Fairbanks, Alaska.

Improved search and rescue and oil spill response capability and infrastructure will provide a launching point for defense support to civilian authorities (DSCA) in the Arctic region during Stafford Act disaster events. The state of Alaska values a close relationship with the Department of Defense (DOD) and understands the need to use all local resources to respond to disaster events across the state. This could include DOD assets under the control of an Alaska National Guard dual-status commander, who is reporting to the Governor through the State Emergency Operations Center.

Improving domain awareness is another critical component of successful Arctic operations. The state of Alaska, the federal Department of Homeland Security, and the Department of Defense, must know who is in the water, and where each vessel is located, to provide maximum safety and to shorten life-saving response time. The Alaska Marine Exchange (AME) needs expanded support. It is worth considering increasing Automatic Identification System (AIS) usage on

vessels traveling in U.S. waters off Alaska's coast – this may need bilateral cooperation to achieve. Information updates in the Arctic must be a state and national priority. These updates must include: new bathymetric charts, real-time weather observations, increased development and use of the AIS, as well as improvements to the Alaska Marine Exchange.

Clearly, both assets and capabilities in the Alaskan Arctic must be enhanced. There is an immediate need to replace the nation's Polar class icebreakers that are operated by the Coast Guard. These major icebreakers are required for a minimal U.S. maritime Arctic presence, and for research and incident response. Commercial icebreakers will also have important roles in supporting offshore drilling and ice escort. In fact, the development of shipyards and deep draft ports in the U.S. and Alaska that can build the private sector assets needed to operate in the harsh Arctic environment should be considered. In the event of a large Arctic oil spill, the Coast Guard lacks a source for Arctic capable assets and cold weather proven equipment and supplies.

Search and Rescue

Background

The need for expanded sea and air search and rescue response capacity corresponds to several factors, including: increased resource extraction to support economic and community development; increased shipping traffic through the Northern Sea Route; increased activity in the Canadian Arctic, including the Northwest Passage, to support marine operations like community resupply; and increased cruise ship traffic.

Note: Discussion, conclusions, and policy recommendations will be developed in 2014.

Oil Pollution Prevention and Response

Introduction

A significant risk of Arctic resource development continues to be hazards associated with crude oil releases. Fortunately, the state of Alaska and many oil and gas companies have operated in the Alaskan Arctic for several decades, with experience in planning, prevention and response. Industry has extracted over 16 billion barrels of crude oil from the North Slope region and built considerable infrastructure since the 1960s including wells, storage tanks, offices and residential facilities that are connected by miles of pipelines, power lines and roads. Although the safety and environmental record associated with exploration and development work has largely been good, the state of Alaska continues to diligently evaluate new models for response planning and organization, technologies, and methods for addressing risks in the Arctic.

Background

The Alaska Department of Environmental Conservation (DEC) is the state's lead agency responsible for monitoring and enforcing state requirements relating to protection of the

environment. This includes marine waters within three nautical miles of Alaska's coast. DEC's Division of Spill Prevention and Response (SPAR) is specifically charged with preventing releases of oil and hazardous substances into the environment; assuring that resource extraction industries have contingency plans, response equipment and trained personnel who can immediately respond when a release occurs; and, overseeing that the cleanup and remediation of contamination meets state standards.

The state shares a number of these duties with the U.S. Coast Guard and the Environmental Protection Agency. The state also works closely with other federal agencies, state agencies, and local governments including the U.S. Department of the Interior – Bureau of Ocean Energy Management (BOEM), Bureau of Safety and Environmental Enforcement (BSEE), Fish and Wildlife Service (FWS) and Office of Environmental Policy and Compliance (OEPC) – U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), Alaska Department of Fish and Game (ADF&G), Alaska Department of Natural Resources (ADNR), the North Slope and Northwest Arctic Boroughs and tribes. Through this interagency coordination, and collaboration with regulated industry groups, such as companies that produce, store or transport petroleum products, the Alaska DEC ensures the efficacy of oil spill prevention and response plan requirements.

This state and federal partnership in spill response planning has yielded positive results and should be supported as part of the state and nation's Arctic policy. For example, under federal law, a National Oil and Hazardous Substances Pollution Contingency Plan (NCP) determines how the nation will prepare and respond to spills based on regional plans. Each region of the country is also required to have a regional contingency plan - Alaska is its own region. State law also requires a state contingency plan. Like the NCP, the State Master Plan defines the governing process for state oil spill response. To coordinate the two plans, federal agencies in Alaska and DEC (through The Alaska Regional Response Team) promulgated in 1994, a joint Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases (known as the Unified Plan) that addresses how the agencies will coordinate in responding to a spill. The planning extends to 200 miles offshore and includes geographic response strategies for the Bering Strait area and mapping of "priority protection areas" to assist in preventing an oil spill from impacting sensitive environmental or cultural areas. The Unified Plan divides the state into ten subareas, each with a detailed plan that includes response strategies to address specifics about the area. The Subarea Plans identify the location of spawning streams, how and where booms will be deployed, places of refuge for ships in distress, and other geographical considerations. The plans are updated on a regular basis responding to changes in industrial activities, advances in science and technology, and changes in applicable laws.[40]

[40] Work to identify additional culturally or environmentally sensitive areas continues. The state, working with local borough, city, and village leaders, has spearheaded an effort to develop geographic response strategies (GRS) for the shorelines of the Western Alaska and the Northwest Arctic Subareas. GRS identify environmental and cultural areas vulnerable to oil spills and offer spill response strategies that might best protect

One of SPAR's major tools for reducing the risk of hazardous releases is its Industry Preparedness Program (IPP). Unlike spill response plans that address geographic areas, this program applies to specific facilities that store, handle or transport crude oil or non-crude oil, and requires that they have Oil Discharge Prevention and Contingency Plans. These plans are reviewed and approved by DEC. The Contingency Plans are designed to minimize the risk of spills and verify that the plan holder is prepared to respond to a spill in a timely and effective manner. The Contingency Plan holder must provide proof of financial responsibility and affirm that they have the actual capacity to respond to an event either with their own equipment and personnel, through participation in an industry spill co-op, or under contract with a certified spill response contractor. Most operators on the North Slope meet these response requirements through participation in the oil spill response co-op, Alaska Clean Seas.[41]

While DEC's role is to plan for and prevent hazardous releases, under state and federal law the spiller has primary duty to respond in the event of a spill. DEC and its federal counterparts provide response oversight, but if a spiller fails to respond as required the government can supplement the spiller's actions or take the lead in the response, relying on contractors and local governments to assist. The state (the Governor and DEC Commissioner) can access funds from Alaska's Oil and Hazardous Substance Release Prevention and Response Fund, which is maintained for emergencies. All state costs for overseeing the spiller's response and for any supplemental spill response activities are, by law, required to be recovered from the spiller.

In addition to extensive oil spill response planning and preparation, Alaska has also committed significant financial and workforce resources to conducting regular drills to practice executing these contingency plans. Practice drills are organized using the Incident Command System, which provides a structure to organize federal, state and local government, industry and responders (including spill response contractors). A federal on-scene coordinator, a state on-scene coordinator from DEC and a designee from industry manage this response team, which can include as many as 200 people. The response team is divided into groups with expertise in planning, logistics, communications, and wildlife, social, and cultural impacts. The structure is highly organized and functions with clear roles and divisions of responsibility. Conducting these periodic practice drills with agencies, local responders, regulated industry and spill contractors

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these sensitive areas. Each GRS provides the site-specific spill response plans to protect the priority area by presenting unified (the public, responders, and agencies) priorities and strategies for implementation. Over 140 GRS have been developed along the Western Alaska coast beginning at Cape Peirce on the north side of Bristol Bay, running north to Point Hope and including the islands of St. Matthew, Nunivak, and St. Lawrence. Currently, 40 more GRS are under development for the Northwest Arctic Subarea. In addition, approximately 200 locations along the coastline of the North Slope Borough have been mapped as "priority protection areas" designated for immediate attention in the event of a spill. Interested federal agencies have participated with Alaska's state agencies in the development of the GRS mapping and strategies through this robust domestic process.

[41] Besides cleaning up spilled hydrocarbons, Alaska Clean Seas collaborates with the Alaska SeaLife Center, in Seward. The Alaska SeaLife Center is a research facility and public aquarium whose mission promotes understanding and stewardship of Alaska's marine ecosystems including marine wildlife response and rehabilitation. A major part of the facility is devoted to a robust wildlife response program, which includes flexible animal care infrastructure that can be tailored to a variety of species enabling care for sick and injured marine animals. The Center has remote wildlife response capability including animal care professionals and field response equipment, and is the only permanent rehabilitation facility for marine animals in Alaska. This organization has also developed a three day instructional program devoted to oiled wildlife care which is presented annually to North Slope spill responders. The Alaska SeaLife Center is uniquely positioned to respond in collaboration with Alaska Clean Seas to ensure rescue response considerations for marine wildlife.

verifies their readiness for a real event and clarifies the plans are sufficient and can be practically executed.

The prospect of increased future Arctic development both onshore and offshore brings a more urgent need for local communities to have the skills and resources to become the immediate and sometimes first responders. Having a quick and effective initial response to a spill can greatly reduce its impact and the cost of cleanup. Recognizing the importance of local response, SPAR, through its Prevention and Emergency Response Program (PERP), is securing formal agreements with communities that provide a structure for training a response workforce. These agreements also identify the optimal location for response equipment and materials, and determine the scope of assistance that the community will provide in the event of a spill. DEC's community agreements and Subarea Plans affirm the importance of local knowledge and help guarantee effective ongoing communication between residents and regulatory agencies.[42]

Discussion and Considerations

Oil spill prevention and response planning necessarily includes consideration of the nexus between open water spills and the Alaska coast. Shell, ConocoPhillips and Statoil each hold federal outer continental shelf (OCS) leases that are located more than three nautical miles offshore and thus outside state waters. Oil spill prevention, preparedness and response requirements on the OCS arise under federal law, primarily under the Outer Continental Shelf Lands Act, the Clean Water Act, the Oil Pollution Act of 1990, and the regulations of USCG, BOEM and BSEE. After the Deep Water Horizon catastrophe in the Gulf of Mexico in 2010, these federal agencies are paying considerable attention to avoiding catastrophic loss of well-head control, and providing on-hand containment, collection and storage capabilities to minimize the spread of spilled crude oil. In 2011 as part of approval of Shell's Chukchi Exploration Plan, BOEM limited drilling into zones capable of flowing hydrocarbons after September 24th to allow time to respond to a potential spill prior to ice encroachment. It is expected that similar restrictions would be applied to other Arctic exploration plans. Eventually, if year-round oil production commences, effectiveness of oil spill containment and recovery in broken-ice conditions must be improved and new techniques developed. Companies will build permanent infrastructure, which potentially includes subsea and buried pipelines to transport crude oil to processing, storage or other points. Detecting corrosion, leaks and devising solutions such as

[42] When the Exxon Valdez ran aground March 24, 1989, the State, the U.S. Coast Guard and ExxonMobil struggled to organize an immediate response to the worst oil spill in the history of the nation. Controversies about the use of dispersants, mechanical methods of cleanup and hot-water treatment confounded the cleanup (http://library.thinkquest.org/10867/cleanup/methods/dispersants.shtml) as did untrained and unprepared responders and workers, lack of information about fauna and other natural resources, complex response logistics, lack of boom and other response materials – many of which had to be shipped to Alaska from points around the world – and the overwhelming distances that the oil traveled. The Exxon Valdez Oil Spill provided Alaska, the Nation and the world a tragic lesson that led to the State and ADEC making aggressive changes including: new laws requiring oil handlers to develop detailed oil discharge prevention and contingency plans and to have equipment in Alaska to respond to certain size spills based on the volume of oil handled, increased State staffing for comprehensive State oversight of marine terminal and tanker operations, annual major spill drills with frequent smaller drills, development of Unified Command / Incident Command Structure, implementation of the Ship Escort / Response Vessel System, positioning of vast reserves of response equipment in key locations, and advanced training for response crews, marine pilots, and tanker and tug officers. See, http://dec.alaska.gov/spar/evos/thennow.htm (cited websites accessed October 2013).

secondary containment will be critical considerations. DEC and other state agencies remain vigilant and involved as federal agencies work to address these considerations and develop appropriate regulations to minimize these risks.[43]

Oil spill and other hazardous releases can come from OCS development, but also from tankers transporting crude or vessels transporting other hazardous materials through Arctic waters - a potentially greater concern as sea ice melts and Arctic shipping lanes remain open longer. Improved spill prevention, preparedness, and response capacity is needed to minimize risks associated with vessels in innocent passage outside the jurisdiction of state and federal regulations. For example, Western Alaska is vulnerable because foreign flagged vessels transiting through this area that are not coming from or going to a U.S. port are not subject to Oil Pollution Act of 1990 (OPA90) regulations and local infrastructure is not sufficient to conduct a response effort. The state frequently responds to vessels losing power and sometimes grounding on Alaska's shores.[44] A case can be made to nations sending vessels through the Aleutians and the Bering Strait that, in the absence of a global mandate from IMO, they should require oil spill prevention and contingency plans to be made in consultation with Alaska's federal and state agencies and coastal communities, and that they should join and support oil spill response organizations (OSROs) operating in these regions.

Small shore-based spills can also occur from daily activities in the Arctic such as transferring and storing fuel or small boat mishaps. Each event requires a different response, but DEC has designed programs so that shore-based assets are in place and personnel are trained to effectively respond in the event of a spill, be it a significant marine spill or minor spill. However, challenges of distance, training, availability of personnel and materials are still an impediment to total readiness in key areas of the Arctic. In addition, new OCS development will require greater coordination and cooperation among state and federal agencies and industry on issues of permitting, spill response planning, infrastructure needs and other responsibilities. Likewise, coordinating spill response planning and achieving agreement between state, federal and international entities will be critical on topics such as use of dispersants, in situ burning, new technologies of on-ice oil recovery and the like. These challenges also highlight the state's broader interest in the international communities' negotiations concerning the safety of Arctic marine transportation.[45]

[43] DEC and other state agencies evaluate and respond as appropriate to federal regulations for offshore development. They also evaluate federal directives for improvements in oil spill preparedness, planning and prevention and participate in memorandums of understanding with federal agencies that delineate the state's role in the review of spill prevention and response provisions in federal OCS contingency plans.

[44] Regarding the Outer Continental Shelf (OCS) and federal jurisdiction, the Department of Interior's (DOI) Bureau of Safety and Environmental Enforcement (BSEE) is currently developing and clarifying "Alaska Standards" which involves a review of existing Oil Spill Response Plan regulations, a determination of their adequacy for U.S. offshore Arctic environments and a plan to recommend appropriate changes to ensure that adequate trained personnel and equipment is in place to respond to a worst-case discharge. During the summer of 2013, BSEE is concluding outreach meetings and working on drafting proposed regulations and a preamble for the formal rule making. They intend to have the proposed rule out for public comment by the end of 2013.

[45] This concern and the need for the USCG to have increased capacity to operate in ice infested waters; to participate in Arctic ocean spill response drills; and more consistent presence in Arctic waters, is dealt with in the Marine Transportation chapter, as is the need for ports and other facilities that can be employed in the event of a marine spill.

On land, the challenges ahead are also numerous: The infrastructure on the North Slope is aging, including the Trans Alaska Pipeline System (TAPS) and other pipelines. Leaks from these lines and other facility failures from corrosion are a concern. In response to a significant crude oil leak in 2006 caused by corrosion in Greater Prudhoe Bay infield pipelines, DEC initiated an assessment of risks associated with aging infrastructure. This resulted in enactment of new regulations, and preventative maintenance and corrosion monitoring and control programs.

Under these programs, DEC has conducted compliance reviews of 69% of the North Slope flow lines and has sponsored technology conferences with leading experts from industry and government to discuss leak detection and remediation.[46] Results of the conferences are published for future use and reference by companies working to address aging infrastructure and striving to identify the leading indicators of potential spills so they can become more effective in preventing them. These conferences and other efforts to collaborate will improve the collection of data and development of tools to analyze and determine the root causes of spills with the goal of reducing incidents. Experience gained from the North Slope as the state and industry meets the challenges of addressing corrosion and aging infrastructure must be made available to the next generation working in the Arctic.

An additional challenge is DEC's lack of presence in Arctic communities and how to allocate and stage spill response workers, equipment and facilities. Although larger companies have extensive accommodations and office space for their work force, state agencies are relegated to renting small, substandard space in Deadhorse or Barrow. Vehicles available for staff are limited on the North Slope and transportation by air, land and water is expensive. This makes the DEC duties of inspection, oversight and monitoring expensive and complex. With the potential for new activity on Point Thomson, NPR-A and offshore, the state must grapple with where and how agency staff will be accommodated for space, telecommunication and transportation, not only to ensure a continuous presence, but to accommodate the expected significant influx of additional personnel in the event of a large spill in the Arctic.

The state's efforts to plan for and prevent oil spills in Alaska are largely paid for by the Oil and Hazardous Substance Release Prevention and Response Fund. This fund was formed in 1986 by the Alaska State Legislature using a five-cent surcharge on each barrel of crude oil produced. The fund was subsequently broken into two accounts: Response and Prevention. Four-cents of the surcharge feed the Prevention account and one-cent feeds the Response account. When the balance of the Response account is greater than $50 million the state suspends collection of the one-cent surcharge on crude. By law, the Response account must be maintained at $50 million and occasionally the one-cent surcharge is reactivated. The Response account can be accessed by the Governor or DEC Commissioner with notice given to the legislature and used to assist the

[46] DEC sponsored a technology conference in September 2011, which culminated in a report, *Pipeline Leak Detection Technology 2011 Conference Report* (March 2012). A similar conference was held in 2013 to provide an opportunity for companies new to operating in Alaska to learn side-by-side with experienced companies about the laws, Arctic pipeline engineering and best practices.

state when it responds to the exigencies of a spill. To replenish this account, the state seeks recovery of its expenditures from the responsible party and deposits the funds back into the account. If this cost recovery is not sufficient, and to ensure the account stays at $50 million, the state can reinstate the one-cent surcharge.

The Prevention account is also an important resource for the state and is used to fund the operating expenses of DEC's SPAR Division, including the Industry Preparedness Program and other prevention activities. The four-cent surcharge on crude oil production that generates the funds appropriated by the legislature into the Prevention account has been adequate to fund the SPAR operating budget in the past (approximately $15 million/year). Now however, as oil production in the state declines, the amount collected via the surcharge is no longer adequate. In fact, using a best-case scenario, DEC predicts that in FY15 there will be less than $150,000 in the Prevention account. The state of Alaska must decide, and soon, whether or not as a public policy the state needs to find another mechanism that will guarantee the sustainability of the state's prevention, preparedness, and response work.

Conclusion: Policy Recommendations

Strategic Recommendations

- Facilitate and secure public and private investment in support of critical aviation and maritime response infrastructure and economic development, to include consideration of direct state funding and/or public-private partnerships that address development of communications, a deep draft port(s), icebreaker(s), logistics hubs, and a WX C-130 size aircraft hangar(s).
- Encourage and advocate for more adequate funding so that the U.S. Coast Guard can carry out its assigned and emerging duties in the U.S. maritime Arctic without compromising its capacity to conduct all missions throughout Alaska.
- Expand and support the Department of Environmental Conservation's effort to involve communities through Subarea Planning and provide local training to maintain limited supplies of oil spill response equipment and to ensure timely, effective and safe response and spill containment.
- Support the Department of Environmental Conservation's ongoing communication with the U.S. Coast Guard in reviewing alternative compliance program development and applications.

Other Recommendations

1. As oil and gas development increases on the federally controlled OCS and in international waters, and as tanker traffic rises, Alaska must continue working to prepare for a coordinated response to spills that reach its shores and impact its communities. This

necessarily involves working closely with Alaska's federal partners and with its neighboring Arctic countries.

A. The state of Alaska should strive to inform all federal policies concerning oil spill prevention, preparedness and response measures.

B. The state of Alaska should continue to participate and enhance engagement at the regional and international level to help reduce the risk of spills, including participation with the following: the Pacific States / BC Oil Spill Task Force; Pacific Northwest Economic Region; Energy Council; Bilateral negotiations with Russia and Canada; Arctic Council work groups and projects; International Maritime Organization; and Industry and trade group conferences and discussions.

2. While the Alaska Department of Environmental Conservation has spent decades working to improve the state's readiness for oil spills of all sizes and types, more needs to be done.

A. The state of Alaska should continue working with its federal partners on its subarea planning efforts under the Unified Plan, with enhanced input from local people.

B. The state of Alaska should continue to explore and advance new technologies and best practices to reduce the risk of hazardous releases in the Arctic that include local knowledge and sharing of information between these entities about their respective efforts to reduce the probability and severity of oil spills.

C. The state of Alaska should support the University of Alaska, enabling it to become the center of excellence for research, technology and practical methodologies for reducing the probability and severity of hazardous releases in Arctic waters.

3. A quick and effective initial response to a spill can greatly reduce its impact and the cost of cleanup. The State Division of Spill Prevention and Response is diligently working, through its Prevention and Emergency Response Program, to secure formal agreements with communities that provide a structure for training a response workforce, but additional work is needed to enhance first responder capabilities in Arctic communities.

A. The state of Alaska should continue to partner with Oil Spill Response Organizations (OSROs) to develop and maintain an on-call work force for large spills.

B. The state of Alaska should monitor OSROs to ensure readiness and encourage new companies to join OSROs. OSROs should have expertise in open water, broken ice, near shore and sensitive area protection and be able to meet contingency plan requirements and operate effectively in the unique and demanding conditions of the Arctic environment.

4. The funding mechanism for the Prevention account of the Oil and Hazardous Substance Release Prevention and Response Fund may not be sustainable to support the necessary work of DEC's SPAR Division, including the Industry Preparedness Program and other prevention, preparedness and response programs in Alaska.

    A. The state of Alaska should devise means to ensure the Oil and Hazardous Substance Release Prevention and Response account is sustainable and available to the state, and through the state, to communities as they plan for increased risk of hazardous releases in the Arctic. It will be important, both for efficiency, and coordination that contingency planning follow the existing structures described in this section, i.e. Subarea planning, industry c-planning and the Incident Command System.

5.8 Energy and Power

Introduction

Energy issues in the Alaskan Arctic are nearly identical to those confronting rural regions throughout the state. The lack of affordable energy threatens the sustainability of many remote communities. In villages where residents must spend more than half of their annual income on fuel and electricity, even modest economic activity, such as maintaining a local consumer economy, is severely limited. These same costs compromise the effectiveness of local governments, schools, and utilities, many of which continually struggle for solvency. This comes at a time when the Arctic is facing expanded opportunity.

Background

The majority of Arctic communities depend on expensive diesel fuel for electricity generation and home heating. In recent years the price for diesel in many rural areas has averaged between $6 and $10 per gallon. Gasoline is similarly priced. It should be noted that communities in the North Slope Borough—which derives considerable income from Prudhoe Bay oil and gas development—enjoy substantial borough subsidies for electricity, heating fuel, and gasoline costs. A 2012 study by Commonwealth North, "Energy for a Sustainable Alaska: The Rural Conundrum," [47] points out that the cost of shipping is a chief factor behind such high prices. "The further the community is from a hub the greater the cost," the report states. "Distance also increases costs by the number of times fuel is handled en route and potential transport or handling difficulties, especially if barged on a shallow river or flown into communities."

There are many additional expenses resulting from remoteness. The Commonwealth North study states, "Community isolation has led to each community having unique and independent power systems, bulk fuel systems, airports, and rural health clinics. Each community's infrastructure has unique capital, operations, and maintenance requirements." This approach to satisfying community infrastructure needs is extremely costly. In the Lower 48 a population the size of Alaska's typically requires one or two power plants to supply its energy needs for both electricity and space heat. In Alaska, there are more than 200 power plants.

Alaska has been battling rural energy costs for decades. The Power Cost Equalization (PCE) program, for example, which subsidizes electricity prices in communities across rural Alaska, was established in 1984. The federal Low Income Home Energy Assistance Program (LIHEAP) was created in 1980, and has been augmented since 2008 by state funding through the Alaska Heating Assistance Program (AKHAP). But PCE covers only a small fraction of rural residential electricity consumption and heating assistance grants can likewise be described as survival-level at best. Neither program covers commercial enterprises.

[47] See reference, www.commonwealthnorth.org/index.cfm?section=About&page=What's-New&viewpost=2&ContentId=807

The PCE program has yielded a wealth of data on utility fuel consumption and associated costs in Arctic communities. However, there remains a shortage of comparable information on energy consumption for space heating. For effective planning of both public and private sector energy development, there is not enough collection of clear and comprehensive community consumption and power-supply data.

Few communities in the Arctic have been able to find long-term remedies for crushing energy prices, but the state continues to search for solutions. In the recent past, the legislature and the executive branch have created and funded many substantial programs and tools focused on these issues. Most of the programs in the following list, which is only a sampling, were established or dramatically expanded within the past decade:

- Renewable Energy Grant Fund
- Emerging Energy Technology Fund
- Sustainable Energy Transmission and Supply Development Fund
- Alternative Energy Conservation Loan Program
- Commercial Building Energy Audit Program
- Power Project Fund Loan Program
- Alaska Housing Finance Corporation (AHFC) Weatherization and Home Energy Rebate Programs
- AHFC Alaska [Public Building] Energy Efficiency Revolving Loan Fund Program
- Community Revenue Sharing

The Alaska Energy Authority (AEA) has been the lead agency for a number of these efforts. For example, in administering the Renewable Energy Grant Fund—established by the Legislature in 2008 to reduce dependence on diesel fuel across the state—AEA has approved more than $202 million in grants for 228 renewable energy projects in Alaska through 2012. While the majority of these projects are still under construction, it is nevertheless estimated that the program has displaced more than 10 million gallons in diesel fuel as of this writing. AEA calculates that the first 62 funded projects to reach operation will provide more than half a billion dollars in net benefits over their lifetimes. However, experts caution that reducing the amount of diesel fuel consumed does not always lead to lower costs for consumers. In some cases, the integration of alternative/renewable energy sources does little more than stabilize high prices. In others, it can actually increase rates. It is important that AEA continue to be rigorous in its cost-benefit analysis of projects competing for investment.

In addition to spearheading many programs for energy innovation and efficiency, AEA also publishes a variety of studies and reports as tools for developing local and regional energy strategies. These include:

- "Alaska Energy - A First Step toward Energy Independence: A Guide for Alaska Communities to Utilize Local Energy Sources"

- The periodically updated "Renewable Energy Atlas of Alaska," which evaluates and compiles renewable energy resources statewide
- "Alaska Energy Pathway," which, by offering processes for assessing the economics of developing local alternative energy sources, including financing strategies, seeks to enable and encourage localities and regions to participate in devising strategies suited to their individual needs

These reports and other resources, including direct guidance from AEA, are being used by local governments and organizations in the Arctic who are forming energy plans for the North Slope, Northwest Arctic, and Bering Straits regions. Presently, local energy plans are in varying stages of development.

Nearly all of the programs and studies named above are guided by the tenets of a state energy policy that was developed during months of hearings and stakeholder meetings in 2009 and adopted unanimously by the Legislature in 2010. Its directives include achieving a 15 percent increase in energy efficiency on a per capita basis between 2010 and 2020 and increasing to 50 percent by 2025 the state's electric generation from renewable and alternative energy sources.

Alaska Housing Finance Corporation's (AHFC) weatherization and home energy rebate programs are clearly focused on the state policy's efficiency goal. Since 2008 the Legislature has appropriated more than $400 million to these programs, which bring immediate results. So far, more than 28,000 homes across the state have been weatherized, creating on average a 30 percent annual savings on residential energy costs. Yet that is only 11 percent of Alaska's 275,000 households, and the rebate program in particular has been criticized for the slower pace at which rural households have been retrofitted. There is also worry over the stability and sustainability of funding for these proven programs, which have so far depended on annual legislative appropriations.

AHFC estimates that the state pays $642 million each year to heat and power public buildings. A realistic reduction of 20 percent of those costs through energy efficiency retrofits would amount to annual savings of $128 million. The Renewable Energy Alaska Project (REAP) has suggested that those savings could be designated to provide a stable funding source for AHFC's residential weatherization programs, so that these programs would not have to depend on annual legislative appropriations.

A significant amount of development of energy-related technologies and strategies in Alaska also occurs outside of state and local government. Just a few examples include:

- REAP with more than 80 organizational and individual members across the state, has since 2004 played a prominent role in promoting the increase in renewable energy use and energy efficiency and conservation in Alaska.

- The Alaska Center for Energy and Power (ACEP) at the University of Alaska conducts applied energy research designed to lower energy costs and strengthen Alaska communities and industries.
- The Cold Climate Housing Research Center (CCHRC) is a nonprofit corporation that develops, tests, and employs energy-efficient and cost-effective building technologies for cold climates.
- The Alaska Native Tribal Health Consortium's (ANTHC) Alaska Rural Utilities Collaborative conducts energy audits of village water plants—often the single largest user of fuel in a community—and assists in energy-saving infrastructure retrofits and operational improvements.
- The Rural Community Action Program's Energy Wise program educates rural Alaskans on energy conservation measures in the home.

Discussion and Considerations

While efforts to further energy efficiency in households make headway, there is concern that programs to encourage retrofitting of public and commercial buildings are underutilized. Only a handful of eligible public buildings have been weatherized using AHFC's Energy Efficiency Revolving Loan Fund, with many others bypassing this financing method by seeking capital project grants or direct appropriations from the Legislature. In light of falling state revenues, it is important that energy efficiency improvements that will generate a return on investment be financed through loans rather than through state grants that would be better used for essential projects that do not generate cash flow. Similarly, while AIDEA has financing available for commercial building energy efficiency retrofits, there appears to be too little outreach to owners of commercial enterprises to persuade them of the substantial financial advantages of making these improvements.

Regional electrical grids have been offered as a way to bring down costs through more desirable economies of scale. However, because the volume of power shared even among multiple communities would likely remain relatively small, questions persist regarding the cost-effectiveness of this strategy in all but the most closely-situated clusters of populations.

Similar factors impede the development of natural resources in the Arctic. Meera Kohler, president of the Alaska Village Electric Cooperative (AVEC), has written that "the cost of energy is what currently renders Alaska non-competitive in the areas of resource extraction and refining and in processing products such as fish." Other authorities agree that such costs have long inhibited the creation of value-added processing and manufacturing industries in the Alaskan Arctic and beyond. Presently, the extraction and export of raw resources appear to be the most viable foundation for economic opportunity in the Arctic.

In the view of some policy analysts, further industrial, security, and civil development in the far North may offer the economies of scale to allow for cost-effective deployment of regional long-

term energy solutions. However, past development models – such as that of the Red Dog Mine in the Northwest Arctic Borough – have segregated industrial operations from local communities, failing to yield lower energy costs for Arctic residents despite their proximity.

While the PCE program requires data reporting on fuel use related to electricity generation, data on community consumption of fuels – including diesel, gasoline, and biomass – for heating and transportation go largely unreported. According to ACEP, "A comprehensive data collection and reporting system could enable businesses or private-public partnerships to develop more effective business plans for investing in systems with greater efficiency, provide better financial predications to inform decisions, and provide access to the local expertise needed to operate and troubleshoot their systems after deployment."

Clearly, there have been wide-ranging and long-term efforts to confront energy issues in rural Alaska, yet costs remain at crisis levels in most Arctic communities. Despite the existence of dozens of studies, plans, and task force reports, Alaskans have not identified and united behind a comprehensive vision that would ultimately meet the energy needs of the state's peoples, whether in rural or Railbelt communities. Community sustainability and opportunities for economic diversification depend on lowering energy costs in the Arctic and across rural Alaska.

Conclusion: Policy Recommendations

Strategic Recommendation

- Develop stable long-term funding mechanisms for state weatherization and energy efficiency programs while continuing robust efforts to find long-term energy solutions.

Other Recommendations

1. The Alaskan Arctic's communities continue to face daunting energy challenges.

    A. While continuing robust efforts to develop long-term energy solutions, the state, local governments, and the federal government should maintain support for energy programs to sustain bush communities in the near term.

2. Energy efficiency and conservation programs have been successful in bringing substantial immediate savings to consumers and improving sustainability in Arctic communities.

    A. The state of Alaska should continue strong support for programs that promote energy efficiency and weatherization in homes, public and commercial buildings, schools, and utilities.

B. The state of Alaska should implement measures to increase use of these programs. In particular it should better communicate the benefits of energy efficiency loan programs to owners of commercial and public buildings.

C. The state of Alaska should develop a stable, long-term funding mechanism for its residential weatherization and energy efficiency programs, which currently depend on annual appropriations from the legislature.

3. Interest in exploiting natural resources in the Arctic is increasing at the same time state, local, and federal governments consider expanding infrastructure to enhance Arctic security, search and rescue, and oil spill response capabilities.

A. The state of Alaska should advance integrated planning and forward thinking to identify opportunities that exploit future industrial and civil infrastructure development projects to serve regional energy needs. Early planning processes and new development models should seek to share power production and infrastructure to bring down costs.

4. The development of financeable regional implementation plans—whether by potential private-sector investors or public entities—has been hampered by the dearth of comprehensive data on community fuel consumption.

A. The state of Alaska should increase collection and dissemination of comprehensive community consumption and power supply data.

5. Innovations that create affordable, reliable, long-term energy solutions for Arctic communities are likely to also serve the needs of remote populations in many regions of the developing world. Stimulating Alaskan academic and private enterprise has the potential to solve problems at home while also creating global opportunities for Alaskan businesses.

A. Support partnerships with the university and the private sector for research and development of new energy technologies to bring down power and heating costs in rural Alaskan communities. This could take a form similar to Governor Parnell's R&D tax credit legislation introduced in 2012 but not passed by the legislature. However, any such legislation should limit tax credits to R&D specifically focused on rural energy and power solutions.

B. Support programs such as the Emerging Energy Technology Fund, which provides grants for technology that is within 5 years of commercialization.

5.9 Fisheries and Wildlife

Introduction

Alaska is world-renowned for its diverse and abundant wildlife, ranging from some of the largest free-ranging caribou herds in the world to a wide variety of marine mammals including several iconic to the Arctic such as the bowhead whale and walrus. The region also supports important nesting habitat for a wide range of waterfowl species. These resources form the foundation of a subsistence-based culture and as such are important from a food security perspective. They also provide important hunting and wildlife viewing opportunities. At the same time, Alaskans depend on sustainable fisheries for their sustenance, livelihood, and recreation. Fishing has been a major source of food for Alaskans and a provider of employment and economic benefits to those engaged in this activity and their communities. For indigenous peoples living along the coast and river systems, fish and fishing has been fundamental to their way of life.

The Alaska seafood industry accounts for over half of all U.S. fisheries production and is a key economic driver in the state. It is the largest private sector employer in the state. An estimated one-in-eight workers in Alaska earn at least part of their income directly from the seafood industry.

A changing climate presents an emerging challenge to management of Alaska's fish and wildlife and their habitats. Potential ecosystem impacts include changes in water, snow, ice and permafrost conditions. These changes potentially have a cascading effect on biodiversity, ecosystems and human living conditions within the Alaskan Arctic. Arctic climate change is a global concern and should be monitored to assess major and irreversible impacts on biodiversity, ecosystems, and the well-being of indigenous peoples and Arctic communities.

Fisheries

Background

Governance of fisheries in the Alaska region is complex[48], but has supported some of the most progressive fisheries management and research programs in the world. Current governance structures have established protocols for the management of fisheries in the future. Jurisdictions of fisheries in Alaska and off Alaska's coasts are generally based on geographic area and species.

International or bilateral agreements among countries oversee some species and areas.[49] Domestically, the North Pacific Fishery Management Council (NPFMC) and National Marine Fisheries Service (NMFS) manage marine fisheries occurring between 3 and 200 nautical miles from shore – the Exclusive Economic Zone (EEZ) – under authority of the Magnuson-Stevens

[48] See Fisheries and Wildlife Appendix A for detailed Fisheries Governance Chart
[49] See Fisheries and Wildlife Appendix A

Fisheries Management and Conservation Act[50]. The NPFMC and NMFS have some authority for halibut, consistent with the North Pacific Halibut Act administered through the International Pacific Halibut Commission. Inside three miles, it is the Board of Fisheries in the Alaska Department of Fish and Game (ADF&G) that has jurisdiction[51], with the exception of halibut. Since fish straddle and migrate across boundaries, coordination among the governing bodies is essential. Coordination occurs now and will be critical as the Arctic develops.

The Alaskan Arctic's marine environment includes two distinct geographic areas: BSAI – Bering Strait and the Aleutian Island chain waters south of the Bering Strait, which include the Bering Sea, Norton Sound, Bristol Bay, and the waters around St. Lawrence, St. Matthew, Nunivak and the Pribilof Islands; and AO – Arctic Ocean waters north of the Bering Strait including the Chukchi and Beaufort Seas and Kotzebue Sound.

The waters in the BSAI area support some of the world's most productive and valuable commercial fisheries. Species of crab, pollock, cod, sablefish, turbot, rockfish, and scallop are caught by vessels using a variety of gear. The catch is processed either 'at sea' or delivered to shore based processors. This lucrative industry occurs mostly in the offshore waters in the EEZ. Historically, fishery resources in these waters have been sustainably managed.

Western Alaska, Interior, and North Slope river systems and lakes in the Arctic support important fresh water subsistence, recreational, personal use and commercial fisheries. Communities across the region depend on vitally important subsistence salmon harvests as a primary food source and commercial fishing income to support mixed cash-subsistence economies.

In the AO area, ice conditions have made the waters relatively inaccessible. It is one of the least known marine areas on earth. In 2009, the Arctic Fisheries Management Plan (FMP), approved by the NPFMC and implemented by the NMFS, took the proactive and precautionary step of establishing a moratorium on commercial fishing in federal waters until sufficient data has been accumulated to allow for the responsible management and exploitation of fish stocks. This means not only maintaining healthy stocks, but also protecting the ecosystem and environment. Harvest in state waters in the AO region has been very low and primarily for subsistence use.

State and federal fisheries management programs for existing fisheries in the Alaska region are science-based, requiring support of strong assessment and research programs. Catches are limited to biologically sustainable levels determined from the best available information. Necessary investments in annual or in-season assessments, catch accounting, monitoring, and enforcement ensure management plans are implemented as intended. State and federal law require fisheries be managed sustainably and both management systems incorporate ecosystem

[50] See Fisheries and Wildlife Appendix B
[51] See Fisheries and Wildlife Appendix C

considerations to promote sustainability. Seasonal and gear-specific closures, or in hot spots and fixed areas are all employed to protect habitat, reduce bycatch (i.e., prohibited species catch, including salmon, crab, and halibut in non-target fisheries) and other incidental catch. These restrictions also minimize interactions with protected marine resources. Fishery scientists incorporate environmental information into their annual stock assessments (e.g., the use of research to document the relationship between ocean temperature and the productivity of certain species).

An interagency sponsored study that will provide the first comprehensive survey data conducted using methods comparable to fisheries surveys in the Bering Sea, is the Arctic Ecosystem Integrated Survey[52]. The study, when completed, will provide an unprecedented baseline for understanding Arctic marine and coastal communities and for assessing the potential effects of future changes in the region on fisheries resources and the marine environment.

Discussion and Considerations

As the ice melts the environment will continue to change, possibly altering migration patterns as well as the range and distribution of marine resources. In some cases, it could lead to extended productive areas and new species. In others, it could negatively alter the habitat for established species that are relied upon by local communities and the seafood industry. With the warming trend, there might be a freshwater component with an increased influence. The risk of introducing invasive species and pollution also rises with the growth of vessel traffic through the Bering Strait and along the Northern Sea Route and the Northwest Passage.

There is growing interest and attention in the Arctic, which has led to a number of organizations and institutions devoting time and energy to the north. Alaska is ideally positioned to be a base for science and research in the Arctic and the University of Alaska is able to coordinate international and interdisciplinary research programs. UAF's new research vessel, the *R/V Sikuliaq* offers new opportunities to explore oceanographic and fisheries research, coastal marine studies, pollution studies, and marine mammal and bird research. The *R/V Sikuliaq* has ice-breaking capabilities that will allow seasonal access to the Arctic Ocean and year-round access to waters south of St. Matthew Island.

In light of the rapid changes that the Alaskan Arctic is seeing, short-term scientific studies can only give us a snapshot in time. For instance, a North Pacific Fishery Management Council analysis, at the time they adopted their Arctic Fishery Management Plan[53], included biomass estimates for key species such as Arctic and saffron cod and snow crab in the Chukchi and Beaufort regions. In the Chukchi region, survey data from 1990 and 1991 indicate nearly 95 percent of the estimated biomass of key species in the region was made up of invertebrates,

[52] See https://web.sfos.uaf.edu/wordpress/arcticeis/

[53] See the federal analysis supporting the North Pacific Fisheries Management Council's action to adopt the Arctic Fisheries Management Plan. The full analysis is posted at http://alaskafisheries.noaa.gov/analyses/arctic/earirfrfa0809final.pdf

mainly non-commercial species. In the Beaufort region biomass estimates from 2008 survey data show brittle stars alone making up nearly half the total estimated weight. Comparisons between two years of Chukchi region survey data show tremendous variation. While commercial species occur in both regions, they do not occur at densities to support an economically viable fishing opportunity. Long-term monitoring is needed to understand how the habitat is changing (e.g., water salinity, temperature, and acidity), the rate of change, and how fish stocks and critical ecosystem components will respond.

Partners in the U.S. Arctic want a framework for more inclusive, efficient, and transparent engagement that does not add unnecessary layers of bureaucracy to the process. Although there is a lot of work being done, it is scattered and not readily available. The U.S. Arctic Research Commission (USARC) developed an online science portal that provides information to a broad cross-section of users. The Alaska Ocean Observing System (AOOS) is also expanding its data repository for broad use, with much focus on the AO area. The North Pacific Research Board is also turning more attention and resources to Northern Bering Sea and AO research.

In both the BSAI and AO, there are waters outside the national EEZ zones of adjoining countries, commonly referred to as the Donut Hole. For the Bering Sea, an international agreement – the Central Bering Sea Pollock Agreement – was signed, but only after a period of unregulated fishing significantly reduced the fish stock. The Arctic Fisheries Management Plan (FMP) established a moratorium on commercial fishing in federal waters until sufficient data has been accumulated to allow for responsible management of fish stocks. Intended benefits of this precautionary approach could be eroded by unregulated fishing in international Arctic waters or by fishing in adjacent EEZs.

Other consideration for efficient and safe harvest of marine resources include sub-standard internet connectivity, the lack of ports of refuge and a permanent Coast Guard presence, limited emergency response capability, inadequate charting, and challenging environment.

Fishing has the potential to provide a stable economy, income, jobs and infrastructure to Arctic Alaska, but it is essential to support the science necessary for responsible management and exploitation of fish stocks. This should happen before the moratorium in the AO area is lifted to support adaptive fisheries management programs capable of responding to environmental changes in the BSAI and Western Alaska as well.

Future development must not diminish the food security of the people and communities that depend on the harvest of fish, game, or marine mammals. Commercialization of Arctic resources should benefit the residents of the Arctic; for instance, it could form the basis of an economy, providing the needed infrastructure for vessels and processors. An example is the Community Development Quota (CDQ) program, which has been successful in promoting economic development, fisheries infrastructure and investments, and workforce development in remote western Alaska communities. Such a program serves as one example of progressive ways of

offsetting development impacts on local resident, other similarly innovative ideas merit consideration as fisheries become commercially viable.

Conclusion: Policy Recommendations

Northern Area (AO)

1. Changes in ice conditions have made the waters of the Arctic Ocean increasingly accessible, but there is very little infrastructure in place to support safe operations.

    A. The state of Alaska should work with the Coast Guard and other federal agencies to improve and increase search and rescue response capability, communications, update bathymetric charts, and assess the need for additional navigation aids. Local and traditional knowledge should help inform this work.

2. As a result of the opening of Arctic waters- one of the least-known marine areas on earth - baseline information will be needed to inform decision making about the management of marine resources and to track changes. Continued assessments will be needed in anticipation of changes in temperature, salinity, acidity and other effects of climate change.

    A. The state of Alaska should support comprehensive scientific research and data including local knowledge to establish reference points and metrics that could be used to develop management plans that support sustainable fisheries in the region.

    B. The state of Alaska should pursue additional investment in the Arctic to estimate the biomass and conditions that contribute to the health of marine resources, but funding must not be “in lieu of” funding needs in the Bering Sea/Aleutian Islands.

    C. The state of Alaska should formalize the process to be used when considering the opening or extension of the fishery of a species for sustained yield in state waters, to include the evaluation of the potential effects of changes on harvest of other species of fish and the marine ecosystem.

    D. The state of Alaska should establish a program to monitor and continue assessing the health of the ecosystem for responsive management that implements a precautionary approach.

3. There is no commercial fishery in the Arctic Ocean, but there are successful existing structures for management in the Bering Sea/Aleutian Island waters that can provide a model for emerging fisheries in the Arctic.

    A. The state of Alaska should seek ways to participate in current international organizations discussing fisheries (e.g., International Pacific Halibut Commission, North Pacific Fisheries Commission, U.S.-Russia Intergovernmental Consultative

Committee, and Convention on the Conversation and Management of the Pollock Resources in the Central Bering Sea) as well as contribute to any new organization regarding the development of marine resources in the Arctic. Current domestic and international fisheries management structures should be adapted to the needs of the Arctic region.

B. The state of Alaska should continue to support the U.S. Department of State efforts to be proactive in establishing an international agreement that ensures sustainable fisheries management plans for waters outside national EEZs are implemented across all jurisdictions in the Arctic. Precautionary management should be extended to the Arctic donut hole and other Arctic nations' EEZs.

4. Alaskans depend on sustainable fisheries for their sustenance, traditional ways of life and also livelihood.

A. The state of Alaska must support maintenance of existing reliance of local residents on food from the ocean and inland waters and not allow the food security of the people and communities to be diminished.

B. The state of Alaska should develop policies to maximize the value and use of marine resources to the benefit of residents of the Arctic, possibly modeled after successful programs like the CDQ program or other innovative ideas.

C. The state of Alaska should encourage the development of infrastructure necessary to support emerging fisheries such as processing facilities, needed utilities, access for local fleets, and transportation to markets.

<u>Bering Sea/Aleutian Islands (BSAI)</u>

1. With changes in temperature, salinity and acidity, there are potential changes in the waters of the BSAI.

A. The state of Alaska should continue funding stock assessments, research, monitoring and enforcement to support the intent of current fisheries regulations.

2. There is existing oversight of the incidental harvest of non-target fish.

A. The state of Alaska should support technology and policies that continue to minimize bycatch in all fisheries.

3. Because fish straddle and migrate across boundaries, coordination among governing bodies is critical.

A. The state of Alaska should continue to participate in current international organizations discussing fisheries.

4. With the opening of Arctic waters, there are risks of pollution, invasive species, and other hazards.

    A. The state of Alaska should work to mitigate risks from increased marine transportation through the Bering Straits with specific attention to BSAI fisheries and fish habitat.

    B. Several mitigation strategies are being considered by the Aleutian Islands Risk Assessment Project Team for application to the Great Circle Route, and the state of Alaska should support these strategies.

Wildlife

Background

Numerous bodies of scientific evidence suggest a warming in the Arctic region. Those assessments indicate that higher surface temperatures are driving changes such as loss of summer sea ice cover, melting of ice sheets, and thawing permafrost increasing methane emissions.[54] The effects of climate change in the Arctic region will have significant local, regional and global implications.

Other potential impacts from these changes have been identified in the ADF&G's Climate Change Strategy[55] and include potential alterations to habitats that support wildlife and their uses. The state is constitutionally required to manage its wildlife for sustained yield, while responsibly developing resources such as oil and gas and associated infrastructure.

Discussion and Considerations

The goal of the Alaskan Arctic wildlife management is to ensure Alaska's wildlife heritage and manage for abundance in the face of a changing climate. A changing climate will present management challenges commensurate with the rate and extent of the change. With this in mind, Alaska should not overlook the potential impact of climate-related changes. Changes to ecosystems will likely affect permafrost, supplies of water, marine and terrestrial biodiversity, and traditional/local foods. Diminishing sea ice may impact local fauna, including marine mammals and will alter opportunities for subsistence hunting by indigenous peoples.

The state is constitutionally required to manage its wildlife for sustained yield and has an excellent history of actively managing its wildlife under this principle using an adaptive ecosystem management approach for the benefit of its citizens. In so doing the state is providing for food security and diversity of use. This is being successfully done while responsibly

[54] See Arctic Council's Snow, Water, Ice and Permafrost Assessment (SWIPA) of 2011
[55] www.adfg.alaska.gov/static/lands/ecosystems/pdfs/climatechangestrategy.pdf

developing resources such as oil and gas and associated infrastructure employing a robust and adaptive environmental review and permitting structure.

The University of Alaska, federal agencies and the Arctic Council have all called for and worked to establish ecosystem-based management of Arctic resources. In light of the lack of understanding of what ecosystem-based management entails, the ADF&G continues to employ an adaptive management system (based on sustained yield and harvest opportunities important to local communities). Increasingly, national refuge and park lands within Alaska are being managed using a passive management approach. Under this approach, "natural diversity" is paramount and wildlife numbers are allowed to fluctuate widely. It will be critical that federal agencies respect and collaborate with state wildlife management aimed at ensuring food security and the food security it provides.

Consideration should be given to include:

- Understand and cross integrating the plethora of local, state, national, and cross-border assessments of climate change on marine and terrestrial biodiversity that potentially impact traditions and local foods
- Promote the participation of local and indigenous peoples in the development and implementation of monitoring and assessment protocols
- Coordinate assessment and monitoring at the local, state, national levels
- Develop and improve public education and awareness programs that promote the conservation of Arctic biological diversity and the sustainable use of biological resources

To provide Alaska's policy makers and other stakeholders with a deeper understanding of the regional and global effects of any Arctic climate change, it is necessary to continue the work of observing, projecting impacts, and implementing sound policies that preserve our wildlife heritage and their uses, including food security, for future generations.

Conclusion: Policy Recommendations

1. A robust Arctic Wildlife Policy is fundamental to preserving Alaska's heritage and ensuring management of the state's wildlife for abundance today and for future generations of Alaskans.[56]

    A. The state of Alaska, with the participation of local and indigenous peoples, should continue on its trajectory to develop a cohesive and comprehensive Arctic wildlife policy. The establishment of such a policy will have to include the identification and assessment of climate-related impacts and threats; monitoring of the Alaskan Arctic biological diversity; scenarios planning and impact assessment;

[56] See Preamble to Alaska's Constitution

collaborative research and assessment; and consideration of species and habitat conservation and restoration.

2. There are a large number of federal laws and regulations about wildlife that are already enacted, though many have broad nationwide jurisdiction.

    A. The state of Alaska should work to better understand the infrastructure of administrating these laws, regulation and the various groups involved and take a leadership role in the coordination of policies at the local, state, and national levels.

3. Changes in the environment have a cascading effect on biodiversity, ecosystems and human living conditions within the Alaskan Arctic.

    A. The state of Alaska should develop a robust and adaptive monitoring program to assess major impacts on biodiversity, ecosystems, and the well-being of indigenous peoples and Arctic communities and an adaption strategy to address identified impacts.

4. Alaska is world-renowned for its diverse and abundant wildlife.

    A. The state of Alaska should develop new and improve existing public education and awareness programs that promote the conservation of Arctic biological diversity and the sustainable use of biological resources.

Strategic Recommendations: Fisheries and Wildlife

- Develop an assessment and monitoring program in support of strategies for fish and wildlife management that enhances food security for Arctic residents.
- Develop new and improve existing public education and awareness programs that result in a more informed public who understand the multi-faceted programs and policies that regulate the conservation of Arctic biodiversity and sustainable use of biological resources.

6 Appendices

List of Appendix Items:

6.1 Commission Members Appendix A

Alaska Arctic Policy Commission

Senator Lesil McGuire
Anchorage
Commission Co-Chair

Representative Bob Herron
South Bering Sea
Commission Co-Chair

Senator Lyman Hoffman
Bethel

Senator Gary Stevens
Kodiak

Senator Cathy Giessel
Anchorage

Senator Donny Olson
Golovin

Representative Alan Austerman
Kodiak

Representative Beth Kerttula
Juneau

Representative Mark Neuman
Big Lake

Representative Bryce Edgmon
Dillingham

Nils Andreassen
Institute of the North
Executive Director
International Arctic Organization Representative

Dr. Lawson Brigham
Distinguished Professor
University of Alaska Fairbanks
University Representative

Peter Garay
American Pilots Association Delegate
Marine Pilots Representative

Chris Hladick
Unalaska City Manager
Local Government Representative

Layla Hughes
Conservation Group Representative

Mayor Reggie Joule
The Native Village of Kotzebue
Kotzebue IRA
Tribal Entity Representative

Stephanie Madsen
Executive Director
At-Sea Processors Association
Fisheries Representative

Denise Michels
City of Nome Mayor
Coastal Community Representative

Liz Qaulluq Moore
Senior Director, Community & Government Affairs
NANA Regional Corporation
ANCSA Corporation Representative

Stefanie Moreland
Special Assistant to Governor Sean Parnell
Governor's appointee

Lisa Pekich
Director of Village Outreach
ConocoPhillips Alaska
Oil & Gas Industry Representative

Pat Pourchot
Special Assistant to the Secretary of the Interior
Federal Government Representative

Steve Scalzo
Foss Marine Holdings COO
Marine Transportation & Logistics Representative

Stephen Trimble
President
Trimble Strategies
Mining Industry Representative

Jake Adams
Board Member
Arctic Slope Regional Corporation

Kris Norosz
Government Affairs Director
Icicle Seafoods, Inc.

We would also like to specifically thank these individuals for their input and guidance: Lt. Governor Mead Treadwell; USARC Chair Fran Ulmer; US Coast Guard District 17 Rear Admiral Thomas P. Ostebo; US Coast Guard Arctic Planning/Coordination James Robinson; Arctic Circle Co-founder Alice Rogoff; former Alaska Senate President Drue Pearce; and former Department of Natural Resources Commissioner Dan Sullivan.

2594
2595

6.2 Acronyms Appendix A

AAPC	Alaska Arctic Policy Commission
AAWG	Alaska Arctic Working Group
AC	Arctic Council
ACEP	Alaska Center for Energy and Power
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOTPF	Alaska Department of Transportation and Public Facilities
AEA	Alaska Energy Authority
AHFC	Alaska Housing Finance Corporation
AIDEA	Alaska Industrial Development and Export Authority
AIS	Automatic Identification System
AKHAP	Alaska Heating Assistance Program
ALCOM	Alaska Command
AME	Alaska Marine Exchange
AMSA	Arctic Marine Shipping Assessment
ANCSA	Alaska Native Claims Settlement Act
ANR	Alaskan NORAD Region
ANTHC	Alaska Native Tribal Health Consortium
ANWR	Arctic National Wildlife Reserve
ANWTF	Alaska Northern Waters Task Force
AO	Arctic Ocean
AOOS	Alaska Ocean Observing System
AOR	Area of Responsibility
APDES	Alaska Pollutant Discharge Elimination System

ARPA	Arctic Research and Policy Act
ASRC	Arctic Slope Regional Corporation
AVEC	Alaska Village Electric Cooperative
BOEM	Bureau of Ocean Energy Management
BRPC	Brooks Range Petroleum Company
BSAI	Bering Strait and Aleutian Islands
BSEE	Bureau of Safety and Environmental Enforcement
CCHRC	Cold Climate Housing Research Center
CDRUSNORTHCOM	Commander of U.S. Northern Command
CDQ	Community Development Quota
CJTF-AK	Commander of Joint Task Force Alaska
CMTS	U.S. Committee on the Marine Transportation System
CONOPS	Concepts of Operation
CSIS	Center for Strategic and International Studies
CZM	Coastal Zone Management
DCCED	Department of Commerce, Community and Economic Development
DEC	Department of Environmental Conservation
DF&G	Department of Fish and Game
DHFF	Department of Health and Social Services
DMTS	DeLong Mountain Transportation System
DMVA	Department of Military and Veterans Affairs
DNR	Department of Natural Resources
DOD	Department of Defense
DOT&PF	Department of Transportations and Public Facilities
DSCA	Defense Support to Civilian Authorities
EEZ	Exclusive Economic Zone
EPA	Environmental Protection Agency

ERMA	Environmental Response Management Application
ESA	Endangered Species Act
FMP	Fisheries Management Plan
FWS	Fish and Wildlife Service
HAZWOPER	Hazardous Waste Operations and Emergency Response
HIA	Health Impact Assessment
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICS	Incident Command System
IEP	Interior Energy Project
IMO	International Maritime Organization
IOCM	Integrated Ocean and Coastal Mapping
IPHC	International Pacific Halibut Commission
IPO	Indigenous Peoples Organizations
IPP	Industry Preparedness Program
IWC	International Whaling Commission
JBER	Joint Base Elmendorf-Richardson
JTF-AK	Joint Task Force Alaska
LIHEAP	Low Income Home Energy Assistance Program
LNG	Liquid Natural Gas
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NIMS	National Incident Management System
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NORAD	North American Aerospace Defense Command
NPR-A	Nation Petroleum Reserve-Alaska
NPAFC	North Pacific Anadromous Fish Commission

2675	**NPFMC**	North Pacific Fishery Management Council
2676	**NSAR**	National Strategy for the Arctic Region
2677	**NSB**	North Slope Borough
2678	**NSSI**	North Slope Science Initiative
2679	**NWLON**	National Water Level Observation Network
2680	**NWS**	National Weather Service
2681	**NWTF**	Alaska Northern Waters Task Force
2682	**OCS**	Outer Continental Shelf
2683	**OEPC**	Office of Environmental Policy and Compliance
2684	**OPA90**	Oil Pollution Act of 1990
2685	**OR&R**	Office of Response and Restoration
2686	**OSRO**	Oil Spill Response Organization
2687	**PAME**	Protection of the Arctic Marine Environment
2688	**PCE**	Power Cost Equalization
2689	**PERP**	Prevention and Emergency Response Program
2690	**RCC**	Rescue Coordination Center
2691	**REAP**	Renewable Energy Alaska Project
2692	**RFA**	Recreational Fishing Alliance
2693	**RFMO**	Regional Fishery Management Organizations
2694	**SAON**	Sustaining Arctic Observing Networks
2695	**SAR**	Search and Rescue
2696	**SNAP**	Scenarios Network for Alaska and Arctic Planning
2697	**SPAR**	Spill Prevention and Response
2698	**STAP**	Science Technical Advisory Panel
2699	**TAPS**	Trans Alaska Pipeline System
2700	**UA**	University of Alaska
2701	**UAA**	University of Alaska Anchorage

UAF	University of Alaska Fairbanks
UNCLOS	United Nations Convention on the Law of the Sea
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
USARC	United States Arctic Research Commission
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USPACOM	U.S. Pacific Command
USF&WS	U.S. Fish and Wildlife Service
USNORTHCOM	U.S. Northern Command
VMS	Vessel Monitoring System

6.3 AAPC Letter of Intent - Introduction Appendix A

The Commission sent a Letter of Intent to Secretary Kerry and National Security Advisor Rice June 28, 2013 outlining their intent, assumptions, and scope of work.

Alaska Arctic Policy Commission

Co-Chair: Senator Lesil McGuire, R-Anchorage, 907.465.2995
Co-Chair: Representative Bob Herron, D-Bethel, 907.465.4942

June 28, 2013

Secretary of State John Kerry
U.S. Department of State
2201 C Street NW
Washington, DC 20520

National Security Advisor Susan Rice
National Security Council
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear Secretary Kerry and National Security Advisor Rice,

With this letter we introduce the Alaska Arctic Policy Commission (AAPC) and the Commission's intent, assumptions, and scope of work. We look forward to working with the implementation team for the National Strategy for the Arctic Region and other federal partners in the months ahead.

It is Alaska, of course, that makes the United States an Arctic nation. The people closest to the challenges and opportunities in the Arctic have a critical role in mitigating the impacts and maximizing the benefits from the increasing activity in this region. It is incredibly important to understand the priorities and perspectives of the peoples who live in and depend on the health of the resources in what is, to them, simply home. Arctic policy is important to all Alaskans. The immediate stakeholders are those who actually live and do business in Alaska and Alaska's Arctic, a place where costs are high and living conditions are, without question, challenging.

Alaskans are quick to recognize both the opportunity and risk inherent to increased activity in the Arctic. At stake are responsible exploration and development of resources; safeguarding traditional ways of life; protecting the unique environment; and ensuring jobs and a livelihood for those who live there. The Alaska Arctic Policy Commission convened under these fundamental responsibilities, committed to the need for balanced and informed decision making, as well as the importance of local voices contributing to, and working in partnership with, relevant policy-makers concerning those decisions.

One of the most important aspects of the AAPC's work is to positively influence federal Arctic policy, strategy and implementation. This Letter of Intent serves to articulate the Commission's scope of work, which includes its assumptions, interests and considerations, as well as offering some initial guidance to our federal partners. It conveys our conviction that the state is an active and willing leader and partner in Arctic decision making, bringing expertise and resources to the table.

The compelling reason for this Letter of Intent, well in advance of our January 2014 preliminary report, is the recent flood of federal Arctic policies and strategies that directly impacts Alaska now and in the future. During the National Strategy for the Arctic Region listening session held on June 14, 2013 in Anchorage, it was clear that the State of Alaska and the AAPC have a leading role to play in the development of the Implementation Plan for the Arctic Region. We appreciate and accept this offer of cooperation from our federal partners. The AAPC intends to meaningfully contribute to federal efforts as a full partner in the development and implementation of Arctic policy and strategy.

The Alaska Northern Waters Task Force recommended the creation of an Alaska Arctic policy commission in its January 2012 final report (www.anwtf.com), and the AAPC was subsequently legislatively created in April 2012. This year, the AAPC met in Juneau on March 23 and in Barrow June 12-13. Video of these

2715

meetings are available – along with the schedule for the AAPC – at www.akarctic.com. The Commission will next meet in Unalaska on August 28 and 29.

The AAPC has formed subject matter committees, focused on themes identified in the Alaska Northern Waters Task Force, that were tasked with compiling a summary of issues, stakeholders, questions, challenges and priority areas for future consideration. By conducting interviews with stakeholders and experts, and providing relevant research and findings, the Commission will inform local, state and national decision-making in the year to come. This letter outlines three key assumptions and eight important considerations that frame the Commission's future process. Active and early engagement with communities, state and federal agencies, Alaska Natives, academia and other stakeholders is fundamental to our success. Communication and collaboration have been central tenets of all work to date and are highlighted in each of the areas of consideration in the attached.

The AAPC has work to do and questions to answer as it progresses toward a preliminary report to the Alaska Legislature due January 30, 2014 and a final report due January 30, 2015. These detailed documents will inform the public and policy-makers regarding the principles with which Alaskans approach the promise of the Arctic, and make "North to the Future" a lasting commitment to all Americans. The Commission is committed to producing a vision for Alaska's Arctic that stands the test of time; delivering policy statements that capture not only the opportunity of the Arctic but also the need to mitigate the challenges; and completing a final product that elevates the priorities and perspectives of Alaskans to a national and international stage.

This Letter of Intent and its attachments emphasize an Alaskan approach and commitment to Arctic policy. We look forward to working with you in full partnership while contributing Alaskan leadership, expertise and knowledge toward a promising Arctic future.

With this Letter of Intent, the 26 Commissioners of the AAPC respectfully submit their observations, suggestions, concerns and determination, on behalf of all Alaska's sovereign citizens, to be involved in our collective Arctic future and Arctic policy.

Sincerely,

Senator Lesil McGuire, Co-Chair

Sincerely,

Representative Bob Herron, Co-Chair

cc:

- Ambassador David Balton (Deputy Assistant Secretary, Oceans and Fisheries, Department of State)
- Tommy P. Beaudreau (Director, Bureau of Ocean Energy Management)
- Eric Cooper (Director, Maritime Security & Director, Arctic Region Policy, National Security Staff)
- Julia Gourley (Senior Arctic Official, Department of State)
- David Hayes (Deputy Secretary, Department of the Interior)
- Brendan P. Kelly (Assist. Director, Polar Science, Office of Science & Technology Policy, EOP)
- Rear Admiral Thomas Ostebo (17th Coast Guard District Commander, U.S. Coast Guard)
- Kathy Sullivan (Acting Administrator, National Oceanic and Atmospheric Administration)
- Nancy Sutley (Chair, White House Council on Environmental Quality)

Enclosures: AAPC Assumptions & Considerations; Alaska Arctic Policy Commission Membership

2716

Alaska Arctic Policy Commission

Co-Chair: Senator Lesil McGuire, R-Anchorage, 907.465.2995
Co-Chair: Representative Bob Herron, D-Bethel, 907.465.4942

Alaska Arctic Policy Commission Assumptions and Considerations

Key Assumptions

1. **State Leadership and Experience**

The State of Alaska has more than a half century of commitment to supporting Alaska's Arctic communities through responsible resource and infrastructure development, with proven experience to help manage the Arctic's future. State of Alaska policy is to promote healthy, sustainable communities - guided by its people and informed by science, public process, and indigenous knowledge and experience. The State of Alaska actively engages residents of the Arctic region in developing policies and strategies.

- State agencies have decades of subject matter expertise and are intimately involved in and knowledgeable about Alaska's Arctic. The AAPC recognizes these as assets that can be leveraged effectively and quickly in response to increasing activity in the Arctic.
- State of Alaska programs provide or support core services in the Arctic region, such as education, public safety, search and rescue and emergency response, oil spill preparedness and response, water and sanitation infrastructure, fish and wildlife management, road and airport infrastructure, energy infrastructure, environmental monitoring, permitting, and mapping.

2. **Federal Oversight, Role and Expectations**

Recently-released U.S. Arctic policies and strategies are revealing in that:

- Consistent among them is the need for collaboration with the State of Alaska, indigenous peoples and local communities. However, it is unclear to the AAPC the extent to which this was practiced in the development of these documents. The Commission believes that early participation by the state and local peoples is fundamental for policy formation and successful implementation. Going forward, Alaska is a ready and willing partner in the development of strategies that address the well-being of its people and management of its resources.
- The calls coming from Alaska for an Arctic Ambassador clearly indicate that a stronger U.S. voice is needed not only for the international community but for Americans who still don't know what it means to be an Arctic nation.

3. **International Engagement and Governance**

The AAPC recognizes the key functions that international governance plays in the Arctic.

- While the AAPC understands that the Arctic Council is not a governing body, Alaskans do have a keen interest in further developing the State of Alaska's role. The AAPC is interested in pursuing all options for Alaskan participation as part of the U.S. Arctic Council delegation,

2717

including residents serving as subject matter experts in Task Forces and Working Groups, and being involved in State Department representation of the U.S. in this body.

- The AAPC recognizes the role of the International Maritime Organization (IMO) in the development of a Polar Code and looks forward to leveraging the State of Alaska's strong partnership with the Coast Guard to enhance Arctic marine safety and environmental protection issues at the IMO.
- Efforts should be made to constructively address concerns about the U.N. Convention on the Law of the Sea.

Considerations

A Scope of Work for Developing Alaska's Arctic Policy

1. Indigenous Perspectives and Priorities

It is important to engage residents of the Arctic region, particularly Alaska Native and rural residents, in developing Arctic policies and strategies. From scientists to Native elders, Alaskans understand the nuances of a change in the Arctic and the opportunities and challenges a changing Arctic presents better than anyone. Alaskans that live in the Arctic are continuously adapting to a changing environment and have valuable experience to inform future management needs and considerations.

The AAPC recognizes the importance of coordination and consultation with Alaska's Arctic indigenous peoples and to fully involve them at the earliest stages of developing an Arctic Policy in order to integrate and promote their interests. To that end, the Commission will consider the interests of Alaska's Arctic indigenous peoples when evaluating resource development, economic and workforce development, expansion of infrastructure, and mitigation of climate impacts. Such activities will be considered in light of its impacts on human health, language and culture, subsistence resources, and food security.

The AAPC will consider ways to:

- Focus increased attention and priorities to U.S. Arctic communities, particularly regarding human health, food security, culture and language preservation, and climate change issues such as coastal erosion, sea ice retreat, and reduction of permafrost.
- Ensure the needs and concerns of Alaska's Arctic indigenous peoples are incorporated into Alaska's Arctic policy, U.S. Arctic strategy and U.S. participation in international arenas.
- Encourage the use and incorporation of traditional knowledge, along with science-based findings, when assembling information upon which to base decision making at all levels.
- Work closely with Alaska's Arctic indigenous peoples to improve consultation and engagement with Arctic communities while facilitating communication between federal, state, and local governments regarding Arctic decision-making and development activities.

2. Governance

A large body of international, federal and state laws, regulations and standards are applicable to activities in Alaska's Arctic. While stronger governance ensures more certainty on behalf of all

2718

stakeholders, the current system is fragmented, spanning local and national jurisdictions and involving a number of species, ecosystems, peoples, and industrial activities.

At the heart of current conversations are how these components are coordinated, where leadership resides, and to what extent local and state input is solicited and integrated. The AAPC understands that local communities are concerned about risk associated with increased traffic through the Bering Strait, for example, without a clear sense of how Alaska's Arctic residents benefit. It is important to the Commission that the State of Alaska be involved in, represent and have an impact on all levels of Arctic governance.

The AAPC will consider ways to:

- Support for current and increased participation in the Arctic Council, as part of the U.S. delegation, within Working Groups, building relationships with Permanent Participants and Observers, and working with the State Department to highlight Alaskan priorities.
- Respect for, implementation of and enhancing the many existing relationships, while considering the potential for new and future opportunities.
- Strengthen collaborative efforts with the federal government as it negotiates international and trans-boundary agreements, as well as implements the U.S. Arctic Policy and corresponding Strategy.
- Increased bilateral engagement with northern nations and regional governments, especially with the Russian Federation, on issues related to the Bering Strait region.
- Established and potential planning efforts that account for change, human activity, environmental impacts, potential conflicts, stakeholder engagement, economic development and the regulatory environment.
- Safe, secure and reliable offshore operations, to include fisheries, oil, gas and mineral development, itinerant vessels, Bering Strait traffic, response capacity, and infrastructure development.

3. Oil, Gas, and Mineral Exploration and Development

Alaska's promise at Statehood was that its significant land and resource base would build its economy and support its citizenry. Today, oil and gas development provides roughly 90% of Alaska's state revenue. Alaska's Arctic Petroleum Province is estimated to hold nearly 30 billion barrels of oil and 221 trillion cubic feet of non-associated gas, and significant undiscovered mineral resources. Alaskans pioneered Arctic resource development and sustainable living. The State has over 45 years of oil and gas development experience in the Arctic and over 100 years of mining experience. Applying this history and experience, the AAPC will formulate actionable recommendations regarding oil, gas and mineral development for integration into Alaska's Arctic Policy.

At a June 2013 public meeting in Barrow, local leaders and residents urged petroleum development of the Arctic National Wildlife Refuge 1002 Area as a preferred option to keep the Trans-Alaska Pipeline System operating until offshore drilling is safer and can better guarantee protection of the Arctic Ocean – their traditional food source. This exemplifies the priority Arctic residents place on responsible new resource development, well-paying local jobs for residents and sustainable economies for their communities, while protecting the environment, their food security and cultural practices.

2719

The AAPC intends to:

- Promote responsible exploration and development of Alaska's Arctic oil, gas and mineral resources to directly benefit the people of the Arctic, and to support improved energy independence for the United States.
- Identify partnership opportunities with federal agencies to advance shared goals and outcomes for a healthy, secure and safe Arctic region.
- Facilitate greater use of both local, traditional knowledge-based and science-based decision making for oil, gas, and mineral development in the Arctic.
- Build partnerships with national, international, commercial, academic and Alaska Native entities to strengthen Alaska's leadership and voice in Arctic resource management and development decisions.

4. Science and Research

If economic activities such as oil and gas exploration, mining, fisheries, shipping, and tourism are to develop responsibly in the Arctic, our knowledge of the far North's marine and terrestrial environments must advance at a corresponding rate. The same warming trends that are expected to create economic opportunities will have a variety of substantial impacts on Arctic communities. Alaska's future prosperity and the well-being of Alaskans living in the Arctic depend in large part on the scientific, technological, cultural, health, and socioeconomic research the state promotes in the coming years.

A strong Arctic research program designed to inform responsible resource development, identify and conserve key ecological functions and subsistence resources, help adaption to a changing climate, and facilitate investment towards healthy Arctic communities rich in tradition and culture must be well coordinated and built on collaborative partnerships. Alaskans hold substantial data, technical expertise, local and traditional knowledge, and other assets of value to collaborative efforts advancing science and research in the region. Dozens of organizations are involved in establishing research priorities and conducting research in the Arctic. Guided by its policy objectives, the state should explore ways to improve, better exploit, and more effectively partner with science and research efforts that serve Alaskans' interests.

The AAPC intends to consider:

- Protocols for respectfully conducting research in and around rural communities and for incorporating local and traditional knowledge into research and decision-making.
- Processes to establish Alaska's research priorities in order to strengthen the state's influence on federal interagency research agendas.
- Applied research, including on oil spills in ice, to inform development decisions, advance technology, and enhance environmental stewardship.
- Basic research and monitoring of environmental conditions to measure impacts of climate change and increased human activity.
- Regional climate modeling in conjunction with scenario planning for sustainable and adaptable communities, civil infrastructure, and economic development infrastructure.
- Ways in which Arctic communities can directly benefit from increased research activities in the region.

2720

5. Energy

Affordable energy is a critical need in Alaska's Arctic. In communities where residents must spend more than half of their annual income on fuel and electricity, even modest economic activity, such as maintaining a local consumer economy, is severely limited. These same costs compromise the effectiveness of local governments, schools, and utilities, which continually struggle for solvency. The high cost of energy also impedes development of natural resources in remote Arctic locations.

The State of Alaska has focused considerable assets on these issues for many years. It has made progress in achieving energy efficiencies through the Alaska Housing Finance Corporation's weatherization and home energy rebate programs, and the Alaska Energy Authority's Renewable Energy Fund is reducing dependence on diesel fuel. More needs to be done to address the threat of high energy costs to the sustainability of many remote communities. Confronting Arctic energy issues requires focused leadership to unite Alaskans behind a comprehensive statewide strategy that will serve Arctic and non-Arctic communities alike. In this, Alaska and the U.S. must acknowledge the linkages between rural and urban Alaska and apply equal resolve and comparable resources to solutions that meet the needs of all.

The AAPC intends to consider:

- Measures at the local, state, and federal level that help sustain communities in the short and medium term as efforts to develop long-term solutions progress.
- Bringing savings to and prolonging sustainability for Alaska's communities through increased research and funding for energy efficiency in homes, public and commercial buildings, schools, and utilities.
- Ways that Arctic communities can benefit from the infrastructure and economies of scale that may come with resource development projects.

6. Planning & Infrastructure

It is important to identify ways in which multiple levels of planning are integrated and coordinated to benefit all Alaskans. Therefore, planning and infrastructure development in the Arctic must account for ports, harbors, places of refuge, and anchorages; telecommunications, aids to navigation, and data acquisition and sharing; emergency management and response; transportation and access to resources; energy extraction, production and delivery; human resources, workforce development, research, education and training; schools, medical facilities, civil Infrastructure (water, sewer, solid waste facilities) and housing.

Critical to Alaska's understanding of these areas is the extent to which they are inter-linked and represent fundamental building blocks of sustainable development in Alaska's Arctic. In order to ensure future prosperity in the Arctic, Alaska must encourage strategic, integrated and intentional planning that results in effective implementation and safe, secure, affordable, efficient and reliable infrastructure. That long-term vision has to be reconciled with a near-term need to develop the infrastructure (port and harbors) required to allow assets to be placed to respond to emergencies, search and rescue capabilities, to exercise sovereignty and national security.

The AAPC intends to consider:

- Meaningful evaluation of – and investment in – spill prevention and response capacity, while recognizing differences in proximity, risk, geography and scale of challenge. The AAPC also recognizes the role of local community planning, training and response.

2721

- The need for communications, navigational aids, and a full analysis on the viability of an Arctic deep draft port, as well as hydrography and marine charting for the region.
- New and creative approaches to sustainable development, needed to fund both planning and infrastructure development, leverage private sector investment, develop resources, and inter-modal approaches.
- Alaska's market competitiveness and preparing the state for global investment opportunities.

7. Security and Marine Transportation

Alaska needs to be proactive in anticipation of the growth in vessel traffic in the Arctic and its impact on the environment and on the people who live there. As traffic increases, it will be important to establish standards and regulations to govern vessels in arctic waters. Since shipping is a global enterprise, key elements of governance will be international regulations; others will be U.S. domestic and local rules. Alaska's policy makers and key stakeholders must be knowledgeable about and involved in the process of developing policies at all levels of governance. Special attention should be paid to the choke point and international strait in the Bering Strait region, the gateway to the Arctic Ocean. The U.S. maritime Arctic, including the Bering Strait region, is also a marine highway for local residents, who traverse it for hunting, fishing, and subsistence.

Decreasing sea ice challenges resource prioritization and directly impacts the State of Alaska's security, environment and economy. The Coast Guard should have full and adequate resources to meet expanding needs, including icebreaking assets in Alaska. Alaska can assist in the identification of air and marine port logistics, including the future development of deep draft port(s) that will need public and private sector investment facilitated.

The AAPC intends to consider:

- Updating the U.S. Coast Pilot produced by NOAA to include Arctic information of relevance to mariners operating through the Bering Strait region and within the U.S. maritime Arctic.
- A coordinated approach to vessel traffic monitoring and assessment throughout the U.S. maritime Arctic, and internationally throughout the Arctic Ocean.
- The State of Alaska's participation in and contributions toward international efforts to establish standards for Arctic vessels at the International Maritime Organization.
- Continued emphasis on the Arctic at the executive level and within state agencies on Arctic marine safety and marine environmental protection.
- Vocational training and education opportunities for young Alaskans and community residents to take advantage of the marine industry by becoming licensed engineers, mates, captains, and pilots.
- Work with federal agencies on coordination of responsibilities in Alaska's maritime Arctic, encouraging all agencies and departments to keep communication open and flowing.
- Search and rescue capacity and environmental protection, to include risk mitigation for subsistence users (i.e.; food security) and the capability to respond to oil spills in the Arctic marine environment.

2722

8. Fisheries

Alaskans depend on sustainable fisheries for their livelihood, recreation, and sustenance. Some of the world's most productive and valuable commercial fisheries occur in the Bering Sea and Aleutian Islands. Indigenous peoples have fished from and lived along western and Arctic Alaska riverine systems for millennia. The high Arctic supports some subsistence fishing, but federal waters of the Chukchi and Beaufort Seas are currently closed to commercial fishing. Fisheries in Alaska's internal and coastal waters are sustainably managed under state and federal management programs grounded in science.

The AAPC intends to consider:

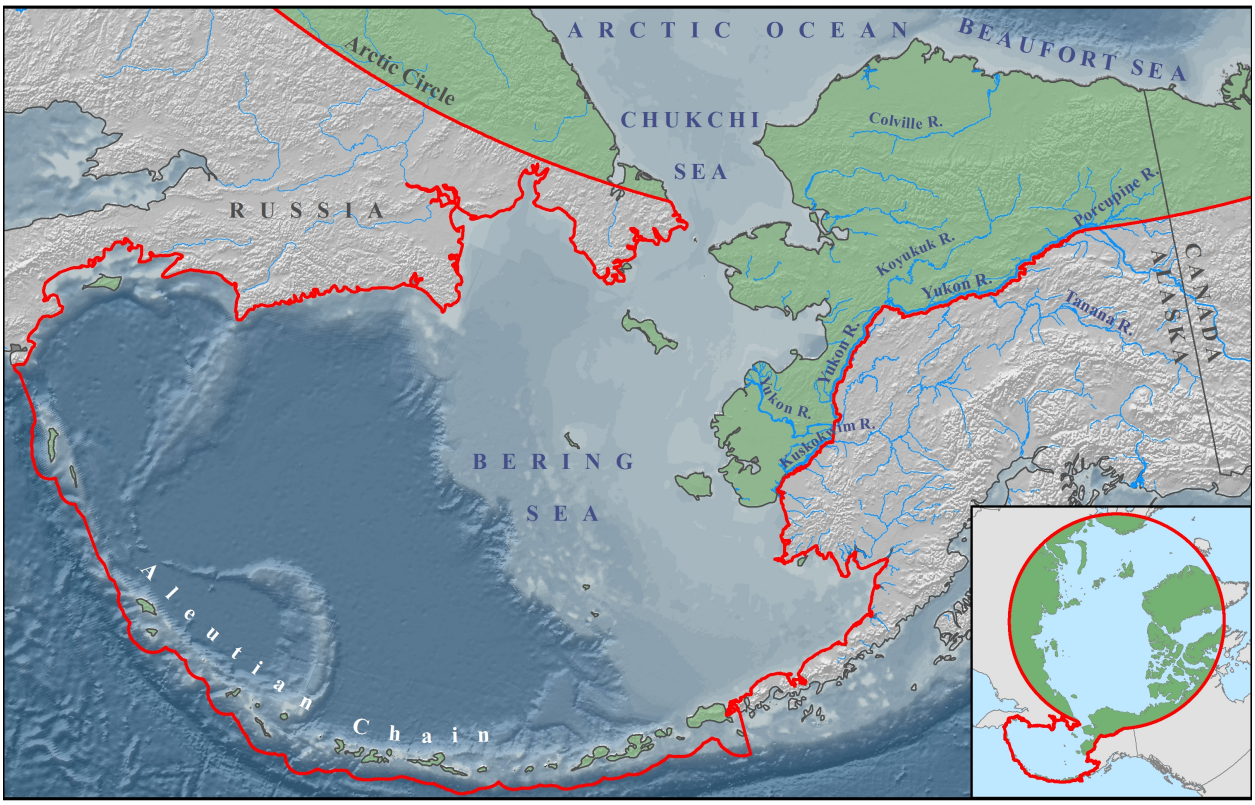
- Change occurring in the Arctic that makes Arctic waters more accessible and the need for monitoring and fishery assessment information that will guide responsive management measures in the Alaskan Arctic.
- The benefit of fisheries' surveys, which in Arctic waters will be critical to informing management of any future, emerging, fishing opportunities in the Arctic.
- The U.S. adoption of a precautionary fisheries management approach for Arctic waters north of the Bering Strait and its benefits, which could be diminished by increased fishing opportunity in adjacent waters, outside U.S. jurisdiction, particularly on migrating and trans-boundary stocks.
- Changes in migration patterns and the range and distribution of marine and freshwater fisheries resources that are anticipated. In some cases, these may affect the possibility of commercial harvest opportunities; in others, it could more broadly alter the habitat for established species relied upon by local communities and the ecology of the area.

2723

6.4 ARPA Map - Introduction Appendix B

Arctic Boundary as defined by the Arctic Research and Policy Act (ARPA)

All United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering and Chukchi Seas; and the Aleutian chain.[1]



Acknowledgement: Funding for this map was provided by the National Science Foundation through the Arctic Research Mapping Application (armap.org) and Contract #0520837 to CH2M HILL for the Interagency Arctic Research Policy Committee (IARPC).
Map author: Allison Gaylord, Nuna Technologies. May 27, 2009.
1. The Aleutian chain boundary is demarcated by the 'Contiguous zone' limit of 24-nautical miles.

6.5 Governance Appendix A

The United States Federal government has recently released four Arctic policy documents.

1. Managing for the Future in a Rapidly Changing Arctic (Report to the President March 2013)
2. National Ocean Policy and Implementation Plan (July 2010 and April 2013)
3. NOAA's Arctic Vision and Strategy (February 2011)
4. NSS - National Strategy for the Arctic Region (May 2013)
5. U.S. Coast Guard Arctic Strategy (May 2013)
6. Department of Defense Arctic Strategy (November 2013)

1. Managing for the Future in a Rapidly Changing Arctic (Report to the President March 2013)[57]

Summary: In consultation with the National Ocean Council, the National Security Staff, and the Arctic Research Commission, the Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska (Alaska Interagency Working Group) initiated this report to describe the challenges related to the management of natural resources in the U.S. Arctic.

The report recommends ways to advance a common management approach, working off the many efforts currently underway to improve coordination among the region's stakeholders. The report recommends employing an Integrated Arctic Management approach when making stewardship and development decisions affecting the U.S. Arctic.

Stakeholders strongly urged these emphases: whole-of-government coordination to improve efficiency and operational certainty; direct and meaningful partnership with stakeholders; science-based decision-making focused on ensuring sustainable ecosystems; adaptive approaches guided by ongoing research and monitoring; a region-wide planning approach that looks across jurisdictional boundaries; and improved understanding and consideration of the cumulative impacts of human activities in the region.

Other recommendations include:

- Ongoing high-level White House leadership on Arctic issues.
- The Federal government should promptly initiate a high-level dialogue with representatives of the State of Alaska, including Alaska Native leaders.
- By the end of 2013, the Federal government should conduct a review of the

[57] Managing for the Future in a Rapidly Changing Arctic: www.afsc.noaa.gov/Publications/misc_pdf/IAMreport.pdf

numerous interagency efforts related to the U.S. Arctic, with an eye toward identifying and addressing overlapping missions and reducing duplication of effort.

- The federal Arctic leadership team should facilitate international coordination by ensuring that the U.S. Senior Arctic Official is fully briefed on domestic efforts in the Arctic so that the Department of State can coordinate these efforts with those of the United States' bordering international partners and other Arctic nations through the Arctic Council.

2. National Ocean Policy (Executive Order 13547 - Stewardship of the Ocean, Coasts, and the Great Lakes)[58]

Summary: The July 19, 2010 Executive Order 13547 established a national policy to ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems and resources, enhanced the sustainability of ocean and coastal economies, preserved maritime heritage, supported sustainable uses and access, provided for adaptive management to enhance the understanding of and capacity to respond to climate change and ocean acidification and to coordinate with national security and foreign policy interests. The EO established the National Ocean Council to implement the Final Recommendations of the Interagency Ocean Policy Task Force.

On April 16, 2013, the National Ocean Council released the Implementation Plan, which describes the actions the Federal Government will take to improve the health of the ocean, coasts, and Great Lakes. The Plan focuses on improving coordination to speed Federal permitting decisions; better manage the ocean, coastal, and Great Lakes resources that drive so much of our economy; develop and disseminate sound scientific information that local communities, industries, and decision-makers can use; and collaborate more effectively with State, Tribal, and local partners, marine industries, and other stakeholders. Without creating any new regulations or authorities, the Plan will ensure the many Federal agencies involved in ocean management work together to reduce duplication and red tape and use taxpayer dollars more efficiently.

Specific to the Arctic, The Plan calls for:

- Providing maritime safety and security in a changing Arctic by enhancing communication systems in the Arctic
- Improving Arctic environmental incident prevention and response
- Improving Arctic sea ice forecasting
- Improve Arctic mapping and charting

[58] Executive Order 13547 --Stewardship of the Ocean, Our Coasts, and the Great Lakes: www.whitehouse.gov/the-press-office/executive-order-stewardship-ocean-our-coasts-and-great-lakes

- Implementing a distributed biological observatory in the Arctic to monitor changes and improve our understanding of their socioeconomic and ecosystem impacts

3. NOAA's Arctic Vision and Strategy[59]

Summary: NOAA's Arctic Vision and Strategy provides a high-level framework and six strategic goals (forecast sea ice, strengthen foundational science to understand and detect Arctic climate and ecosystem changes, improve weather and water forecasts and warnings, enhance international and national partnerships, improve stewardship and management of ocean and coastal resources in the Arctic and advance resilient and healthy Arctic communities and economies) to address NOAA's highest priorities in the region.

4. NSS - National Strategy for the Arctic Region[60]

Summary: On May 10, 2013, the White House released the National Strategy for the Arctic Region, emphasizing these three topics: advancing U.S. security, pursuing responsible Arctic environmental stewardship, and strengthening cooperation with international partners.

This National Strategy is intended to position the United States to respond effectively to challenges and emerging opportunities arising from significant increases in Arctic activity due to the diminishment of sea ice and the emergence of a new Arctic environment. It defines U.S. national security interests in the Arctic region and identifies prioritized lines of effort, building upon existing initiatives by federal, state, local, and tribal authorities, the private sector, and international partners, and aims to focus efforts where opportunities exist and action is needed. It is designed to meet the reality of a changing Arctic environment, while simultaneously pursuing global objective of combating the climatic changes that are driving these environmental conditions. The strategy directs the U.S. to consult and coordinate with Alaska Natives, recognizing tribal governments' unique legal relationship with the United States.

Other National Strategy Directives:

- Evolve Arctic infrastructure and strategic capabilities by working with the State of Alaska, local, and tribal authorities, as well as public and private sector partners
- Enhance Arctic domain awareness to enhance sea, air, and space capability
- Provide for future U.S. energy security by factoring the Arctic region's potential energy resources
- Protect the Arctic environment and conserve Arctic natural resources services.
- Use Integrated Arctic Management
- Increase understanding of the Arctic through scientific research and traditional

[59] NOAA's Arctic Vision and Strategy: www.arctic.noaa.gov/docs/NOAAArctic_V_S_2011.pdf
[60] National Strategy for the Arctic Region: www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf

knowledge
- Chart the Arctic region's oceans and waterways and map its coastal and interior lands
- Work through the Arctic Council to advance U.S. interests in the Arctic region.
- Accede to the Law of the Sea Convention
- Cooperate with other interested Arctic, non-Arctic states and other entities to advance common objectives in the Arctic

5. U.S. Coast Guard Arctic Strategy (May 2013)[61]

Summary: The U.S. Coast Guard vision for operating in the Arctic Region is to: 'ensure safe, secure and environmentally responsible activity in the Arctic.' The new USCG Arctic strategy released May 21, 2013 focuses on three strategic objectives:

- Improving awareness
- Modernizing governance
- Broadening partnerships (domestic and international)

The strategy also recognizes other factors that will be key including: building national awareness of the Arctic and its opportunities; strengthening maritime regimes; improving public-private relationships; and, identifying future requirements and resources. The Coast Guard notes that the Arctic is not a new venture for the Service. It has a long history in Alaska since it was purchased from Russia in 1867 and a long history of operating the Nation's polar ships. These experiences provide many historic lessons.

For long-term success the strategy notes as important the following approaches: enhancing public-private partnerships to implement best practices and respond to challenges; increased Federal interagency cooperation; increased international cooperation at the Arctic Council and other organizations; use of advanced science and technology applied to the Arctic; and, use of risk-based management to protect the Arctic environment.

The document establishes the Coast Guard's strategy for operations in the Arctic given the realities of today's geo-strategic context. Future development of the Coast Guard's enhanced capability in the Arctic will evolve around the three objectives noted above and engagement with a host of partners and stakeholders.

6. Department of Defense Arctic Strategy (November 2013)[62]

Summary: The U.S. Department of Defense Arctic Strategy, released November 22 2013 at the Halifax International Security Forum, identifies that a desired end-state for the Arctic is: 'a secure and stable region where U.S. national interests are safeguarded, the U.S. homeland is

[61] U.S. Coast Guard Arctic Strategy: www.uscg.mil/seniorleadership/DOCS/CG_Arctic_Strategy.pdf
[62] Department of Defense Arctic Strategy: www.defense.gov/pubs/2013_Arctic_Strategy.pdf

protected, and nations work cooperatively to address challenges.' Two main supporting objectives are: (1) Ensure security, support safety, and promote defense cooperation; and (2) Prepare to respond to a wide range of challenges and contingencies.

The DOD Arctic Strategy states that the Department will accomplish these objectives in the following ways:

- Exercise sovereignty and protect the homeland
- Engage public and private sector partners to improve domain awareness in the Arctic
- Preserve the freedom of the seas in the Arctic
- Evolve Arctic infrastructure and capabilities consistent with changing conditions
- Support existing arrangements with allies and partners while pursuing new ones to build confidence with key regional partners
- Provide support to civil authorities, as directed
- Partner with other departments and agencies and nations to support human and environmental safety
- Support the development of the Arctic Council and other international institutions that promote regional cooperation and the rule of law

The strategy notes the uncertainty of future projections about the Arctic Ocean and climate change. It also states that 'fiscal constraints may delay or deny needed investment in Arctic capabilities, and may curtail Arctic training and operations.' DOD will also attempt to mitigate a public narrative that speaks to rivalry and conflict in the Arctic. DOD will also be careful to not be too aggressive in taking steps to anticipate future Arctic security risks so that mistrust & miscommunication will not materialize.

Arctic Council

Intergovernmental forum whose membership includes the eight Arctic nations—the United States, Canada, Denmark (representing Greenland and the Faroe Islands), Iceland, Norway, Sweden, Finland, and the Russian Federation—and the council's Permanent Participant (PP) organizations. These include the Inuit Circumpolar Council, Aleut International Association, Arctic Athabascan Council, Gwich'in Council International, Russian Association of Indigenous Peoples of the North, and the Saami Council. The first four of the Permanent Participants listed above have members living in Alaska and like all PPs they hold special seats at the Arctic Council table (distinct from their Arctic Nations) and engage across all the Arctic Council working groups, expert groups, and task forces.

At the Nuuk Ministerial, the Arctic States also identified a number of other issues to work on, and decided to address these issues through wide-ranging processes, such as task forces and the establishment of expert groups. One task force was created to address internal, institutional issues, and the Ministers also decided to establish a permanent secretariat for the Arctic Council. These decisions also reflect the development of the Council as an institution.

AC Working groups, expert groups, and task forces: Permanent working groups conduct research, synthesis and analysis related to Arctic monitoring and assessment, Arctic contaminants, protection of the marine environment, emergency prevention and preparedness, conservation of flora and fauna, and sustainable development. The Arctic Council Expert Groups have very focused work scopes, such as the current Ecosystem-based Management Experts Group and in the past an Arctic Health Experts Group. There are also Task Forces that operate within the framework of the Arctic Council for a limited amount of time. Current 2013 Task Forces include: Task Force on Arctic Marine Oil Pollution Prevention, Task Force on Black Carbon and Methane, Scientific Cooperation Task Force, Task Force to Facilitate the Circumpolar Business Forum.

State Agencies

State agencies are engaged in a series of activities with particular relevance to the Arctic region of Alaska. Some of these activities are listed below:

- Department of Military and Veterans Affairs conducts exercises and maintains equipment specifically designed for Arctic search and rescue
- Department of Environmental Conservation engages in oil spill prevention, preparedness, and response; monitoring of trans-boundary contaminants; and addressing rural water and sanitation needs
- Department of Fish and Game monitors, conducts research, and manages fish and wildlife populations across the Arctic region, documents subsistence needs, provides subsistence opportunity, and works with proposed development projects to mitigate impacts to fish and wildlife resources and their habitats

- Department of Natural Resources coordinates and conducts project permitting; is leading efforts to improve statewide digital mapping; and has developed expertise in permitting and regulation of resource development activities in Arctic environments
- Department of Transportation and Public Facilities is contributing to deepwater Arctic port and improved airport infrastructure planning throughout the region
- Department of Health and Social Services has built up capacity and expertise to conduct comprehensive health impact assessments to inform resource development activities
- Department of Commerce, Community & Economic Development is working in collaboration with the University of Alaska Fairbanks to study shipping and related considerations for commerce and international trade

Tribal Governance

Alaska Natives have a unique government-to-government relationship with the United States. [63] Current federal policy acknowledges that the self-determination and the self-governance of Alaska Native and American Indian people are critical to the survival of these cultures and peoples. Self-determination policies, such as the Indian Reorganization Act of 1934, were a result of recognizing the failure of assimilation and termination policies the United States used against Alaska Native and American Indian people.

Alaska Natives governed themselves for thousands of years before the United States purchased Alaska from Russia. Today, approximately 229 of the over 500 federally recognized Tribes in the United States are located within the State of Alaska. Alaska Native Tribal governments are important Alaska Native communities and Alaska Native people. Approximately 20% of the citizens of the State of Alaska identify as Alaska Native. Many Alaska Natives are registered members of their respective Tribal governments Alaska Native Tribes have the ability to execute federal responsibilities to Alaska Native people using federal resources.[64] The framework of Alaska Native Tribal governance is complicated, but important in the context of Arctic policy. In addition to federal recognition, the rights of Tribes to self-govern and be self-determined are recognized in international law.[65]

Alaska Native Land Claims

Though the United States purchased Alaska from Russia in 1967 and Alaska became a state in 1959, Alaska Native claims to traditional lands was not settled until 1971 through the Alaska Native Claims Settlement Act (ANCSA). ANCSA established 13 Alaska Native Regional and about 200 Village corporations that hold title to lands retained by Alaska Natives. The 13th Regional Corporation ceased operations in 2009 and about 80% of the Village Corporations are currently active. From these Corporations a framework for economic development was created. Today 7 of the top 10 companies in Alaska are Alaska Native Corporations.

Alaska Native Claims Settlement Act of 1971: In return for relinquishing claims to nearly all of Alaska's 375 million acres, Alaska Native people received title to 44 million acres, plus $962.5 million in cash that used as seed capital for the 13 Native Corporations. (Citation: Alaska Native Corporations Economic Data Report 2010)

[63] November 5, 2009 Presidential Memorandum, President Obama, in recognition of that special relationship and pursuant to Executive Order 13175 of November 6, 2000. "History has shown that failure to include the voices of tribal officials in formulating policy affecting their communities has all too often led to undesirable and, at times, devastating and tragic results. By contrast, meaningful dialogue between Federal officials and tribal officials has greatly improved Federal policy toward Indian tribes. Consultation is a critical ingredient of a sound and productive Federal-tribal relationship."
[64] PL 93-638 Indian Self-Determination and Education Assistance Act of 1975
[65] 61/295 United Nations Declaration on the Rights of Indigenous Peoples

Alaska National Interest Lands Conservation Act 1980: Through this legislation statutory preference gives qualified subsistence users priority over other users, when resources are scarce, in the taking of Alaska's fish and wildlife resources.

The United Nations recognizes Indigenous Peoples Organizations (IPOs) and currently the United States is a signatory on the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). UNDRIP acknowledges that indigenous populations have a right to exercise their rights based on their indigenous identity and have a right not to be subjected to forced assimilation or destruction of their culture. UNDRIP includes the protection of language and culture and access to subsistence resources, in addition to other rights.[66]

Alaska Natives are active in the Arctic Council by their leadership and membership in this international forum as Permanent Participants. In Alaska the most engaged are the Aleut International Association and the Inuit Circumpolar Council with the Canadian members of the Arctic Athabaskan Council and Gwich'in Council International leading their participation.

The International Whaling Commission (IWC) is another international body with Alaska Native leadership. IWS is comprised of the countries that signed on to the International Convention for the Regulation of Whaling in 1946. IWC regulates the indigenous take of whales by setting quotas in addition to its other activities on whaling. The United States provides information to the IWC on the continuation of subsistence whaling activities. Information on whaling is provided to the federal government by local whaling commissions in accordance with Section 119 of the Marine Mammal Protection Act. This includes at least 3 whaling commissions.

National: The U.S. has a unique legal and political relationship with Indian tribal governments, established through and confirmed by the Constitution of the United States, treaties, statutes, executive orders, and judicial decisions. Through his November 5, 2009 Presidential Memorandum, President Obama, in recognition of that special relationship and pursuant to Executive Order 13175 of November 6, 2000, stated that all executive departments and agencies will engage in regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, and are responsible for strengthening the government-to-government relationship between the United States and Indian tribes. In Alaska, the Federal government interacts with Alaska Natives and [state agencies?] through the CDQ Program and Regional Subsistence Committees.

Established in 1992, the Western Alaska Community Development Quota (CDQ) Program allocates a percentage of all Bering Sea and Aleutian Islands quotas for groundfish, prohibited species, halibut, and crab to eligible communities. There are sixty-five eligible villages that have organized into six CDQ entities or village coalitions. Each CDQ entity is federally-recognized as an independent nonprofit organization with a separate board of directors and internal governance

[66] 61/295 United Nations Declaration on the Rights of Indigenous Peoples

process. The purpose of the CDQ Program is to (i) to provide eligible western Alaska villages with the opportunity to participate and invest in fisheries in the Bering Sea and Aleutian Islands Management Area; (ii) to support economic development in western Alaska; (iii) to alleviate poverty and provide economic and social benefits for residents of western Alaska; and (iv) to achieve sustainable and diversified local economies in western Alaska.

Regional Subsistence Committees: The Marine Mammal Protection Act gives the National Marine Fisheries Service and the US Fish and Wildlife Service the ability to enter into cooperative agreements with Alaska Native organizations to co-manage marine mammals. Cooperative agreements include the Alaska Native organizations that are comprised of local Alaska Native leaders and utilize traditional knowledge and science to co-manage marine mammals. Alaska Native organizations include, but are not limited to the Alaska Eskimo Whaling Commission; the Alaska Beluga Whale Committee; Ice Seal Committee, etc.[67]

[67] Marine Mammal Protection Act Amendments of 1994, Section 119

6.6 Science and Research Appendix A

To give some idea of the profusion of institutions, organizations, and governmental agencies presently carrying out research in the Arctic, the following is a partial inventory.

State agencies whose work regularly involves research and operations in the Arctic include:

- Department of Fish & Game
- Department of Environmental Conservation
- Department of Natural Resources
- Department of Commerce, Community, & Economic Development
- Department of Transportation and Public Facilities
- Department of Health and Social Services
- Division of Homeland Security and Emergency Management

Recent state-led initiatives researching and addressing Arctic issues include:

- Alaska Climate Change Sub-Cabinet (2007 to Present)
- Alaska Northern Waters Task Force (2012)
- Alaska Climate Impact Assessment Commission (2008)

Local government and in-region organizations conducting research in the Arctic include:

- Barrow Arctic Science Consortium
- North Slope Science Initiative (including local, state, and federal affiliates)
- North Slope Borough
- Northwest Arctic Borough

The University of Alaska is among the world's leading institutions for the study of the Arctic. Here are just some of the university's institutes and programs that focus on the region:

- International Arctic Research Center at the University of Alaska Fairbanks (UAF)
- Alaska Center for Climate Assessment & Policy (UAF)
- Scenarios Network for Alaska & Arctic Planning (UAF)
- Alaska Climate Research Center (UAF)
- Geophysical Institute Permafrost Laboratory (UAF)
- Institute for Circumpolar Health Studies (UAA)
- Institute of Northern Engineering (UAF)
- Environment and Natural Resources Institute (UAA)
- School of Fisheries and Ocean Sciences (UAF)
- Institute of Social and Economic Research (UAA)
- Alaska Center for Energy and Power (UAF)
- Northern Studies Program (UAF)

- Center for Cross-Cultural and Indigenous Studies (UAF)
- Institute of Arctic Biology (UAF)
- School of Natural Resources & Agricultural Sciences (UAF)

On the federal level, agencies regularly active in Alaska's Far North include:

- U.S. Department of the Interior
  - U.S. Fish & Wildlife Service
  - U.S. Geological Survey
  - Bureau of Indian Affairs
  - Bureau of Land Management
  - Bureau of Ocean Energy Management
- National Oceanic and Atmospheric Administration
  - National Marine Fisheries Service
  - Office of Oceanic and Atmospheric Research
- Environmental Protection Agency
- U.S. Coast Guard
- U.S. Army Corps of Engineers
  - Cold Regions Research and Engineering Laboratory
- U.S. Department of Defense
- National Science Foundation
- Department of Energy
- Marine Mammal Commission

Federal inter-agency structures that address Arctic issues include:

- Interagency Arctic Research Policy Committee
- Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska
- National Ocean Council
- U.S. Arctic Research Commission
- Alaska Ocean Observing System
- North Pacific Research Board
- North Pacific Fishery Management Council and Scientific and Statistical Committee

Non-governmental organizations with Arctic research programs include:

- Pew Charitable Trusts U.S. Arctic Program
- World Wildlife Fund U.S. Arctic Field Program
- Arctic Portal (data and information clearing house)
- Oceana
- International Union for Conservation of Nature
- University of the Arctic

- Gordon and Betty Moore Foundation
- Prince Albert of Monaco Foundation
- The Aspen Institute, Arctic Commission Roundtable
- Oak Foundation – Marine Conservation, Arctic Programme
- Center for Strategic & International Studies (CSIS) – Think Tank

NSSI

Partners in the NSSI include the Alaska Departments of Fish & Game and Natural Resources as well as the North Slope Borough and the Arctic Slope Regional Corporation. Participating federal agencies include the Bureau of Land Management; the U.S. Fish and Wildlife, National Marine Fisheries, and National Parks Services; and the Bureau of Ocean Energy Management, Regulation, and Enforcement. Advisory entities include the U.S. Arctic Research Commission, the U.S. Department of Energy, the National Weather Service, and the U.S. Geological Survey.

The U.S. Arctic Research Commission (USARC)

The commission consists of seven members, appointed by the President, as well as the director of the National Science Foundation, who serves *ex officio*. Currently, the USARC includes four commissioners who are longtime Alaska residents: Chair Fran Ulmer; David Benton; Edward Saggan Itta; and Mary C. Pete. However, similar to the legislation enabling the North Slope Science Initiative, the Arctic Research and Policy Act of 1984 requires that only one appointee be an Alaska resident.

6.7 Planning and Infrastructure Appendix A

The Northern Waters Task Force – Summary Planning and Infrastructure Background

Changes in temperature and precipitation are likely to hold enormous implications for both existing and future construction of infrastructure. The ability to better predict and understand the effects of phenomena such as widespread thawing of permafrost will help Alaska prepare for considerable maintenance issues on existing roads, airports, buildings, and pipelines. Just as importantly, it will aid engineers when it comes to properly siting, designing, and constructing new infrastructure capable of withstanding future changes in their specific environments. These important concerns have also been examined in ADOTPF's "Impact of Climate Change on Alaska's Transportation Infrastructure."

These changes pose significant challenges to some communities in Arctic coastal and riverine areas, most notably those located along the Bering and Chukchi Seas. A number of communities are threatened with increased rates of coastal erosion and flooding as a result of storm activity and battered shorelines once protected by shore-fast ice. These problems could become chronic as the climate warms, seasonal sea ice retreats, and destructive coastal storms become more frequent. These important concerns have been recognized in reports issued by the state of Alaska's Climate Change Subcabinet Immediate Action and Adaptation work groups.

Immediate investment in Arctic infrastructure is a foremost priority for Alaska and the entire United States. Alaska will need to explore ways to attract substantial sources of capital investment in addition to state and federal funding. Action is needed to enable the responsible development of resources; facilitate, secure, and benefit from new global transportation routes; and safeguard Arctic residents and ecosystems. This investment will improve the safety, security, and reliability of transportation in the region—a goal established by the U.S. Arctic Policy signed by President Bush in 2009.

As interest and activity in the Arctic continues to rise, America's preparedness in the region becomes ever more important to national security. Increased human activity related to shipping, oil and gas development, commercial fishing, and tourism will require, at a minimum, new ports and safe harbors, equipment and facilities for oil spill response, additional Polar Class icebreakers for the U.S. fleet, and improved charting and mapping.

The U. S. Coast Guard's needs in these areas well illustrate the magnitude of infrastructure investment necessary in negotiated by the eight Arctic Nations through the Arctic Council commits the United States to search and rescue response in regions of the Arctic. Domestically, the National Contingency Plan requires the U.S. Coast Guard to oversee oil spill planning and preparedness in coastal waters and to supervise any oil spill response. Additionally, the U.S. Coast Guard's mission is to protect the public, the environment, and U.S. economic interests in

the nation's ports and waterways, along the coast, on international waters, or in any maritime region as required for national security.

At present, the Coast Guard has very limited Arctic emergency response capabilities and no permanent bases on Alaska's North Slope to support its operations. Basic needs there include communications, housing, and support facilities. It is especially notable that the Coast Guard has only one operational Polar Class icebreaker, the USCG Cutter Healy. Clearly, the Coast Guard does not have the assets required to carry out its expanding mission in the Arctic.

As human activity increases in Alaska's northernmost waters, the need to establish a Coast Guard base in the Arctic grows. The most northern Coast Guard base in the United States is in Kodiak, Alaska, more than 1,000 miles from possible Chukchi Sea drilling sites and nearly as far from existing Arctic shipping lanes in the Bering Strait. This distance causes untenable logistical problems that negatively impact response times and capabilities. The Coast Guard must have a greater overall presence in the Arctic, with the ability to stage assets closer to future shipping, oil and gas drilling, and commercial fishing activities.

With transformation in the Arctic calling for a broad spectrum of new facilities on such a large scale, the state of Alaska must take an active role in regional planning efforts with communities and their stakeholders. This will help communities develop local strategies and ensure that the state is getting the most return on investment for local projects. Some communities may not have the resources to adequately prepare for the future, and the state should take this opportunity to help increase local capacity for the benefit of all Alaskans.

6.8 Planning and Infrastructure Appendix B

Stakeholders Report

Sub-Theme: Ports, Harbors, Places of Refuge, and Anchorages

AIDEA has an ownership positions in three ports of which only one is an Arctic region facility - DeLong Mountain Transportation System (DMTS).

1. AIDEA owns the port facilities at the DMTS which provides critical infrastructure for the Red Dog mine in the Northwest Arctic Borough. Although this port does not offer a place of refuge or anchorage, due to its shallow depth and exposure, it is critical for the development of mineral resources in the Arctic.

    i. Current state of this project is that it is fully operational.

    ii. This infrastructure is critical to accessing stranded mineral resources and creating long-term economic opportunities in the region.

2. AIDEA is partnering with the Arctic Slope Regional Corporation (ASRC) in the development of an Arctic port facility. ASRC and AIDEA are conducting various feasibility studies, planning efforts and pre-development analyses to assess project's feasibility and economic viability.

    i. Current state is in pre-development analysis.

    ii. No assets are in place at this point.

    iii. The pre-development analysis is attempting to fill in the information gaps.

    iv. This port is important because it has the potential to be a place of refuge, usable by the USCG and other such agencies, and provide access to market for the region's extensive mineral resources.

ASRC From west to east along the Arctic Slope coastline there are naturally formed embayments, shelters and anchorages that have served shipping vessels for more than 150 years: Cape Thompson, Point Hope, Cape Lisburne, Icy Cape, Wainwright Inlet, Point Franklin, Point Barrow, Cape Halkett, Oliktok Point, Prudhoe Bay, Mary Sachs Entrance and Barter Island. All of these locales offer shelter and anchorage of some kind. Some, like Cape Thompson, hold the potential even to host a deepwater port with modifications. Wainwright Inlet, Point Barrow, Oliktok, Prudhoe Bay, and perhaps Barter Island offer the best mix of shallow-draft access, shelter and access to infrastructure like landing strips, supplies, communications and people. The remainder offer excellent refuge and anchorage access for shallow- and mid-range draft vessels. For the village-based locales, witness the annual barge shipment of fuel goods and dry materials

that occurs at each village and in the oil patch for testaments to the usefulness of the locations for shipping.

Each individual facet of change that comes to the Arctic will require its own marine access. For the oil and gas exploration in the Alaska OCS it may be one thing. For the US Coast Guard it may be something else, and so on. For that reason the future will probably bring us *"Arctic ports"* (plural, and with a lower case "p") rather than an *"Arctic Port"*. Alaska's Arctic policy should maintain that logistics, bathymetry and individual projects will determine the location of these access points and they should not be determined by some pre-ordained method unrelated to actual needs.

Sub-Theme: Transportation and Energy Production (Access to Resources)

ASRC it has occurred in the rest of Alaska, it is the resource development projects themselves that will create transportation and energy production solutions. There can be no "roads to resources" for example until there is a real resource development-justified need for the road. TAPS and the Dalton Highway would not have been built without the discovery of the Prudhoe Bay field at the other end of the line. The same is true in the marine environment.

AIDEA currently has two active assets in Alaska's Arctic, The DeLong Mountain Transportation System (DMTS) and the Mustang Road and Production Pad.

1. The DMTS consists of a 52 mile road and port facilities that allow ore concentrates from the Red Dog Mine to be transported, stored and shipped to facilities for further processing. This infrastructure has been in place since the 1980s and will continue to operate for many years to come. AIDEA is currently reviewing proposals for additional users of the road from the nearby Lik Deposit. The Red Dog mine provides over 500 permanent jobs in the region and provides tax revenues to the Northwest Arctic Borough and the State.

    i. Current state of this project is that it is fully operational.

    ii. This infrastructure is critical to accessing stranded mineral resources and creating long-term economic opportunities in the region.

2. The Mustang Road project was completed this year and consists of a 4.5 mile access road and production pad for Brooks Range Petroleum Company (BRPC) drill site and production facility. This project will allow for the development of the planned BRPC $180mm oil production facility which is expected to put up to 15,000 bpd of oil into TAPS. Other companies in the area have expressed an interest in using the road and pad for their own development and eventual use of the projected production facility. Current state is in pre-development analysis.

    i. The road and production pad are currently in place.

ii. The drill site and production facility will be constructed when the financing package for the project has been completed.

iii. This project is important because it will allow for the development of stranded oil reserves that will not only add oil to TAPS but create well-paying jobs.

3. Roads to Resources: AIDEA is currently pursuing Roads to Resources projects in the Arctic which include the Ambler Mining District Access and the Foothills West Access projects.

4. The Ambler Mining District Access project will provide a 200+ mile, all-season industrial road to access state lands, and facilitate the exploration and development of mineral resources within this area. Work with baseline studies continues in preparation for the filing of the permit application and subsequent EIS.

i. Current state it's in pre-permitting baseline data gathering and analysis.

ii. No assets are in place at this point.

iii. This project is important because it will allow for the development of remote mineral reserves that will create many well-paying jobs in the region.

5. The Foothills West Access project is proposing to construct a road that will provide all season access to optimize and expand oil and gas exploration and development within the Foothills area, and provide all-season access to the NPR-A in this region. Since 2009, DOT&PF has performed and contracted for engineering and environmental studies of potential road corridors and now AIDEA will continue the work in partnership with Linc Energy to complete the permitting process.

i. Current state it is in pre-permitting phase awaiting EIS.

ii. No assets are in place at this point.

iii. This project is important because it will allow for the development of stranded oil reserves that will not only add oil to TAPS but create well-paying jobs.

Sub-Theme: Energy Extraction, Production and Delivery

The Interior Energy Project (IEP) authorizes AIDEA to provide a defined financing package to partner with the private sector to build a liquefied natural gas (LNG) plant on the North Slope and a natural gas heating distribution system in Fairbanks and North Pole. IEP is anticipated to reduce monthly heating costs by 40 to 50 percent, resulting in potential annual savings to residential ratepayers of up to $3,000. Natural gas should substantially improve Interior air quality by providing a substitute to wood- and oil-burning heating systems. It is expected this will help the region meet federal Environmental Protection Agency (EPA) standards.

i. Current state it is in pre-development feasibility analysis and private partner negotiations.

ii. Information gaps exist, this pre-development analysis will provide need information.

iii. No assets are in place at this point.

iv. Project will not only reduce energy costs and air pollution but will create an environment that is conducive to economic development and long-term sustainability for the interior (Fairbanks) and northern regions.

Sub-Theme: Emergency Management and Response

ASRC The North Slope Borough Search and Rescue Department hosts some of the most Arctic-ready assets for search and rescue functions on the North Slope. With its inventory of fixed wing and helicopter aircraft, the NSB SAR has been of life-saving benefit to icebreakers, oil and gas explorers, world travelers and to North Slope residents. So big is their influence that the US Coast Guard, when they arrived in Barrow to test their own search and rescue assets, said that they (USCG) were taking a second-string role in search and rescue, to learn from the more Arctic-skilled personnel and better-suited aircraft of the NSB SAR. As good as it is, the SAR is only part of the Emergency Response effort. In the event of a collision, spill, or other accident they would be crucial, but just a part of what the NSB has assembled in an Incident Command. This has been tested in our region, with exploration well blowouts, plane crashes, fuel spills and other incidents. The NSB has used its access to traditional knowledge, physical infrastructure, heavy equipment and manpower, and its IC system to integrate its efforts with the oil and gas industry as well as state and federal agencies. The NSB system should be fully researched by the Commission to determine how it would need to be replicated or enhanced in a developing Arctic.

Still needed are staging areas for response equipment in areas of active exploration. There may be a lot of assets in the Prudhoe Bay area, and other equipment may travel on vessels that transit to or explore in the Arctic waters, but the Commission should question the adequacy of what exists now. Once areas of offshore oil and gas development are known, for example, there should be thought given to pre-staging emergency response assets. Bottom line: stage the right things at the right place.

NOAA's National Weather Service (NWS) provides weather and water forecast services to protect life and property, and to enhance the economy and fulfill obligations under international treaties for the safety and security of marine transportation, energy exploration, and tourism activities. NOAA provides forecasts, warnings, and information for surface, marine, and aviation weather interests, with emphasis on high-impact events. It's the agencies responsibility to advise the Federal On-Scene Coordinator on oil cleanup measures in the coastal and marine environment. In addition to scientific support, NOAA provides spill response training support,

preparation for natural resource damage assessment, marine debris removal, research and education.

i. Current state is NOAA faces challenges in meeting its obligations

a. NOAA is working with other agencies, states, tribal and local governments, along with other partners to best meet needs for emergency management and response.

b. Certain science and data gaps exist in the Arctic; NOAA lacks the infrastructure and technical capability to meet all its obligations to provide weather warnings and forecasts that protect life, property, and communities. These gaps impact marine transportation, aviation, oil spill response, and storm surge warnings. Lack of forecasting negatively impacts northern and western Alaskan coastal communities from severe flooding and forecasting for NCP during oil spill response.

c. Major challenges also include limited observations and lack of appropriate operational storm surge model for the region.

ii. NOAA has a number of assets in place to support Emergency Response for oil spills.

a. Office of Response and Restoration (OR&R) has one Science Support Coordinator for Alaska (and will be adding a second in August 2013), OR&R has also developed an Environmental Response Management Application (ERMA) for the Arctic with Stand-alone capacity and will be conducting a field test on board the USCG Cutter HEALY in September 2013.

b. NOAA's NWS has dozens of meteorologists and technicians with knowledge and experience in weather, water, and sea ice prediction and emergency response procedures specific to the challenging Arctic environment.

iii. What gaps do you feel need to be addressed?

a. Improved NOAA models to predict oil movement and weathering in ice-infested waters, assess vulnerable natural habitats, build Arctic oil spill response capacity for NOAA staff, and fund external research to fill science gaps need to be addressed. Furthermore, mitigation strategies for limited communications and response infrastructure are needed.

b. Accelerate the development and implementation for operational storm surge model for north and western Alaska coasts; improve use of remote sensing data to advance the prediction of weather, ocean, and sea ice conditions; improved observation and information infrastructure for data collection and forecasting.

iv. Why is this important to Alaska's Arctic?

a. The capacity for emergency response, particularly concerning oil and chemical spills, is fast becoming an urgent requirement with increasing use of the Arctic Marine Transportation System and expected exploration and development of oil and gas.

b. Severe weather forecasts are critical for Arctic communities to prepare for and respond appropriately to weather and water-related routine and extreme events. They also support safe maritime transportation through accurate and timely marine forecasts and warnings.

Sub-Theme: Aids to Navigation, and Data Acquisition and Sharing

ASRC The Alaskan Arctic suffers from a painful lack of access to the world's communication network. Microwave towers or fiber optic links are the only answer. Resource developers, Arctic researchers, government agencies, and our own people are hobbled by a lack of efficient communication infrastructure. Its placement in the Alaskan Arctic will be a life-changing event for the residents and a crucial key to success for any developing industry.

NOAA's National Ocean Service is lead agency for nautical charts and shoreline mapping supporting safe navigation and efficient maritime commerce. In addition to sea ice and weather forecasts, NOAA's nautical charts, Coast Pilot, and other aids to navigation are important parts of the maritime information infrastructure, and are supported by the underlying geodetic, oceanographic, and hydrographic data that must be collected to build nautical charts. NOAA recently updated its Arctic Nautical Charting Plan. NOAA is working to acquire gravity data, tides and currents data, hydrographic data and shoreline mapping data in the U.S. Arctic. This data is used for navigation products and widely available for other users via NOAA data centers and Digital Coast. NOAA support the Integrated Ocean and Coastal Mapping (IOCM) of the Arctic data acquisition.

i. Currently the U.S. Arctic is severely deficient in its nautical charts and shoreline maps.

a. Arctic waters that are charted were surveyed with obsolete technology, and some surveys date back to the 1800s. Most of Alaska's northern and western coasts has not been mapped to National Shoreline standards since 1960 or earlier.

b. There is a gap of 18 National Water Level Observation Network (NWLON) stations in the Arctic for accurate water levels.

ii. Current NOAA assets are the 500 sq. nautical miles of Alaskan waters surveyed every summer and 190 sq. nautical miles of coastline using LiDAR, presently funded.

a. NOAA has nine NWLON stations to monitor real-time water levels in the Alaskan Arctic. Gravity data acquisition for accurate heights/positioning is underway in Alaska and will be mostly completed by 2017, with the Aleutians to follow.

b. NOAA uses availability data and maintains a number of agreements to support the sharing of environmental data without restriction. In 2011, NOAA signed an agreement with Shell, Conoco Phillips, and Statoil to share Arctic datasets. Meteorological and oceanographic data were the first to be shared by the industry partners. This data was incorporated into NOAA assessments and forecasts during Shell summer 2012 operations and subsequent emergency incident(s). These additional observations continue to help NOAA improve forecast accuracy in the Arctic region.

iii. What gaps do you feel need to be addressed?

a. The Arctic region has virtually no geospatial infrastructure for accurate positioning and elevations, sparse tide, current, and water-level prediction coverage, along with obsolete shoreline and hydrographic data. Funding needs to be increased and partnerships could speed up the process. Navigation offices in NOAA are working on further developing partnerships under NOAA's Arctic Nautical Charting Plan and the National Strategy for the Arctic Region implementation plan.

b. Although NOAA is transparent with its data and is engaged in partnerships to share data, there is plenty of room to increase the number of collaborators.

iv. Why is this important to Alaska's Arctic?

a. Safe and efficient navigation is important for Alaska's economy, Arctic coastal communities, and environmental protection. NOAA's nautical charts and shoreline maps support safe navigation and knowledge of Arctic waters, habitat assessments and inundation models. Any changes in the Arctic can alter indigenous ways of life. When ice barriers that protect Arctic coastal communities diminish, the state of Alaska and its people must make critical decisions based on threats from stronger storms, increasing erosion, thawing permafrost, changing animal migration patterns, and sea level changes. The potential economic impacts of these changes can be significant as well as a danger to local communities.

b. Data-sharing increases the efficiency of delivering services in the Arctic - can speed up requirements like data collection for navigation services, data for sea ice forecasts, etc.

Sub-Theme: Human Resources, Workforce Development, Research, Education and Training and Housing, Sewer and Water

ASRC The answer to these two combined sub-themes will be learned as we go forward. It is said that offshore oil drilling, for example, will require thousands of individuals. Some will travel north with their vessels, and others will be employed from around the country, including Alaska. Yet there is still some risk as to the timing and location of energy exploration. Our local communities need to have gainful employment from the increase in commerce and exploration. When energy development does come to the OCS, we need to improve upon the Prudhoe Bay experience and put more of our own local people to work. Thankfully, we are better poised than in the early days of Prudhoe Bay; we have Native-owned enterprises that stand ready to assist energy developers in their efforts and we can target our own residents for employment opportunities. The size and nature of any new development project, energy or otherwise, will determine what and where housing, water/sewer, and other infrastructure should be placed. Pre-staging anything like that ahead of time is a gamble that may result in the wrong facilities in the wrong place.

6.9 Planning and Infrastructure Appendix C

Reference Material:

Northern Waters Taskforce Report - Findings & Recommendations
http://housemajority.org/coms/anw/pdfs/27/NWTF_Full_Report_Color.pdf

ADOT&PF Statewide Long-Range Transportation Policy Plan – Lets Get Moving 2030
www.dot.alaska.gov/stwdplng/areaplans/2030/assets/SWLRTPPfinal022908.pdf

ADOT&PF Statewide Long-Range Transportation Policy Plan - Data Refresh
www.dot.alaska.gov/stwdplng/areaplans/2030/assets/LGM2030datarefreshfinal12-10.pdf

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www.poa.usace.army.mil/Portals/34/docs/AKports/AK%20Regional%20Ports%20905b%20FINAL_May2008.pdf

USACE/DOT&PF Alaska Deep-Draft Arctic Ports Planning Charrette May 16-17, 2011
www.poa.usace.army.mil/Portals/34/docs/AKports/Charrette%20Summary%207-13-11web.pdf

2013 Alaska Broadband Task Force Report-A Blueprint for Alaska's Broadband Future
www.alaska.edu/files/oit/bbtaskforce/2013-08-AK-Broadband-Task-Force-Report%7CA-Blueprint-for-Alaska%27s-Broadband-Future.pdf

Paula Lowther, Arctic Deep Water Port, Alaska Business Monthly, Jan 2012
www.akbizmag.com/Alaska-Business-Monthly/January-2012/Arctic-Deep-Water-Port/

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www.arctic.gov/publications/2011-12_usarc_goals.pdf

National Science and Technology Council (NSTC) Arctic Research Plan FY 2013–2017
www.whitehouse.gov/sites/default/files/microsites/ostp/2013_arctic_research_plan.pdf

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http://assets.fiercemarkets.com/public/sites/govit/hlssummarycapstone.pdf

Representative Bob Herron - Empowering Alaska as America’s Arctic
www.institutenorth.org/assets/images/uploads/articles/Empowering_Alaska_as_America%E2%80%99s_Arctic_By_Representative_Bob_Herron.pdf

Northwest Artic Borough-Comp Economic Development Strategy of March 2012
http://commerce.alaska.gov/dnn/Portals/6/pub/NWABEDC_CEDS.pdf

Fairbanks North Star Borough-Comp Economic Development Strategy 2011

http://commerce.alaska.gov/dnn/Portals/6/pub/FNSB_CEDS.pdf

Bering Strait Comp Economic Development Strategy 2009

http://commerce.alaska.gov/dnn/Portals/6/pub/BSDC_CEDS.pdf

6.10 Fisheries Appendix A – Governance of Arctic Fisheries

International agreements oversee several species:

- North Pacific Anadromous Fish Commission, NPAFC www.npafc.org/new/index.html
  - NPAFC doesn't actually govern fisheries in US EEZ, but NPFMC (NOAA) is bound by law to observe its conventions, which are primarily responsible for prohibiting harvesting salmon on the high seas and for enforcing that prohibition outside the EEZs of US, Canada, Russia, Japan and Korea. NPAFC Science Plan 2011-2015 can be found at www.npafc.org/new/publications/Documents/PDF%202010/1255(2011-2015%20Science%20Plan).pdf
- International Pacific Halibut Commission IPHC http://www.iphc.int/
  - IPHC sets the quotas which are implemented by IPHC regulations in US waters. In the ARPA Arctic area http://alaskafisheries.noaa.gov/maps/iphc/areas.htm in addition to the regulations of IPHC, halibut is managed by the North Pacific Fishery Management Council as a prohibited species. A prohibited species is one that a fishery targeting other species, i.e. pollock, can only catch so much of before they have stop fishing altogether.
- Conservation and Management of Pollock Resources in the Central Bering Sea 1994 – the donut hole www.afsc.noaa.gov/refm/cbs/convention_description.htm
  - These are waters that are beyond 200 nautical miles

Russians and Norwegians have an international agreement on fishery management in the Barents Sea www.fao.org/docrep/006/y4652e/y4652e0e.htm

- The Barents region has its own "donut hole" called the "Loophole" and other disputed jurisdiction areas outside the EEZ's of Russia and Norway.

Regional Fishery Management Organizations
http://ec.europa.eu/fisheries/cfp/international/rfmo/index_en.htm

- Various RFMOs apply to the Arctic on above the Atlantic; ICCAT for example, extends into the Arctic Ocean on the Atlantic side of the continent.
- The RFMOs on the Atlantic side are coordinated by the International Council for the Exploration of the Sea ICES an international fishery management body for Europe and the North Atlantic. www.ices.dk/Pages/default.aspx

United States - www.nwr.noaa.gov/whatwedo/msa/magnuson_stevens_act.html

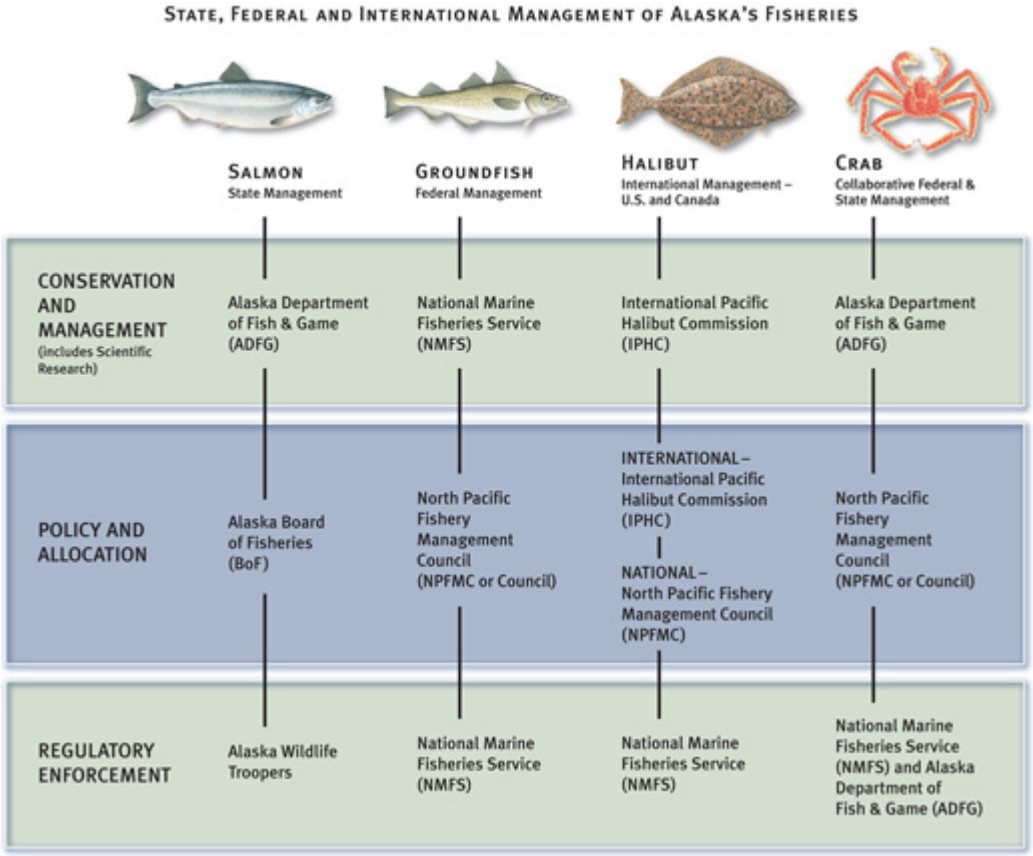
The Magnuson-Stevens Act is the guiding law for marine fisheries occurring between 3 - 200 nautical miles from shore - called the Exclusive Economic Zone (EEZ). It is governed under the National Ocean and Atmospheric Administration (NOAA). The North Pacific Fishery Management Council (NPFMC) makes recommendations to the National Marine Fisheries

Service (NMFS) which develops a Fishery Management Plan (FMP) for a specific area. In addition to the Magnuson-Stevens Act, they must follow other applicable laws (ESA, NEPA, RFA) in the Fishery Management Plan. (see Appendix C for a detailed list)

Alaska - www.adfg.alaska.gov/index.cfm?adfg=fishing.main

The Board of Fisheries in the Alaska Department of Fish and Game (ADF&G) that has jurisdiction of the waters up to 3 miles from shore. They regulate commercial, sport, personal use and subsistence fishing. This involves research, planning, management, protection, enhancement, restoration of the ecosystem. (see Appendix B for a detailed list)

State, Federal and International Management of Alaska's Fisheries:



6.11 Fisheries Appendix B – State of Alaska Arctic Management

The Board of Fisheries' main role is to conserve and develop the fishery resources of the state. It sets policy and direction for management of subsistence, commercial, sport, and personal use fisheries. The board is charged with making allocative decisions, including establishing open and closed seasons, areas for taking fish; setting quotas, bag limits, harvest levels and limitations for taking fish, and establishing the methods and means for the taking of fish. The department is responsible for management based on those decisions.

Commercial Fisheries

- Norton Sound, Port Clarence, and Arctic-Kotzebue Area
  - Commercial Fisheries Management Report
    - www.adfg.alaska.gov/FedAidpdfs/FMR13-28.pdf
  - Commercial Fisheries Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=commercialbyareanortonsound.main
- Northern Area
  - Commercial Fisheries Management Report
    - www.adfg.alaska.gov/FedAidpdfs/FMR12-23.pdf
  - Commercial Fisheries Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=commercialbyareanorthern.main
- Bering Sea & Aleutian Islands Area
  - Commercial Fisheries Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=commercialbyareaaleutianislands.main
  - Commercial Fisheries Management Report for Herring
    - www.adfg.alaska.gov/FedAidPDFs/FMR12-38.pdf
  - Commercial Fisheries Management Report for Groundfish
    - www.adfg.alaska.gov/FedAidPDFs/FMR12-38.pdf
  - Commercial Fisheries Management Report for Shellfish
    - www.adfg.alaska.gov/FedAidPDFs/FMR12-22.pdf

Sport Fisheries

- Northwest Drainages Management Area
  - Sport Fish Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=ByAreaInteriornorthwest.main
- North Slope Management Area
  - Sport Fish Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=ByAreaInteriorNorthSlope.main
- Fishery Management Report for Sport Fisheries in the Northwest / North Slope Management Area
  - Management report

- www.adfg.alaska.gov/FedAidPDFs/FMR12-45.pdf
- Kodiak Management Area (includes the Alaska Peninsula and Aleutian Islands)
  - Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=ByAreaSouthcentralKodiak.main

Subsistence Fisheries

- Bering Sea / Aleutian Islands Area
  - Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceBeringAleutians.main
- Norton Sound – Port Clarence Management Area
  - Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceNortonSound.main
- Kotzebue Sound Management Area
  - Overview Webpage
    - www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceNortonSound.main

6.12 Fisheries Appendix C – Federal Arctic Management

Arctic Management Area - Fishery Management Plan

- 2009 Fishery Management Plan
  - http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/fmp/Arctic/ArcticFMP.pdf
- 2013 amendments to the 2009 Plan
  - www.pcouncil.org/groundfish/fishery-management-plan/

Bering Sea Aleutian Islands (BSAI) Management Area

- 2012 Groundfish of the BSAI Fishery Management Plan
  - http://alaskafisheries.noaa.gov/npfmc/pdfdocuments/fmp/bsai/bsai.pdf
- Crab Fisheries
  - http://alaskafisheries.noaa.gov/sustainablefisheries/crab/default.htm
    - Rationalization - http://alaskafisheries.noaa.gov/sustainablefisheries/crab/crfaq.htm
    - Buy back - www.nmfs.noaa.gov/mb/financial_services/buyback.htm
- Rockfish Program
  - http://alaskafisheries.noaa.gov/sustainablefisheries/rockfish/
- Halibut Catch Sharing Program
  - http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/halibut/Area4CSP605.pdf
- Exempted Fisheries
  - http://alaskafisheries.noaa.gov/ram/efp.htm
- 2007 amended Magnuson Stevens Act
  - www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf
- 2006 Amendment 80 – to facilitate formation of harvesting cooperatives
  - https://alaskafisheries.noaa.gov/sustainablefisheries/amds/80/
- 2004 revision
  - http://alaskafisheries.noaa.gov/npfmc/PDFdocuments/meetings/Management_FMP.pdf
- History of Magnuson Stevens Act
  - www.oceanconservancy.org/our-work/fisheries/msa-the-law-thats-saving.pdf

NPFMC Salmon - EEZ - http://alaskafisheries.noaa.gov/npfmc/fishery-management-plans/salmon.html

Background informational sites:

NOAA – North Pacific Fisheries Management Board - alaskafisheries.noaa.gov/npfmc
NOAA – Community Development Quota Program - alaskafisheries.noaa.gov/cdq/